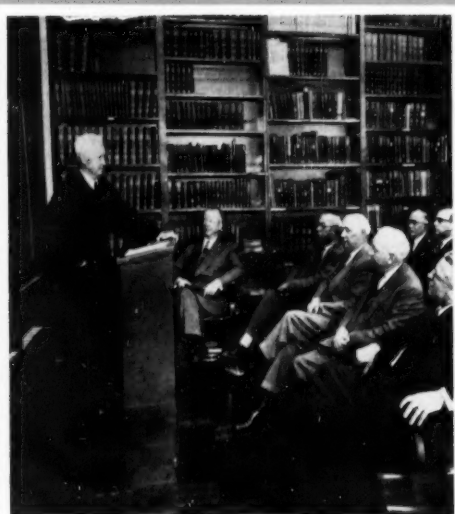


Chemical Week

May 29, 1954

Price 35 cents



Record-high output is achieved by low-paid but highly fringe-benefited French workers p. 18

▶ **Hooker's Murray: His researchers trade research ideas in face-to-face confabs p. 38**

A bookkeeping chore can be converted into a sales-building tool; here's how p. 52

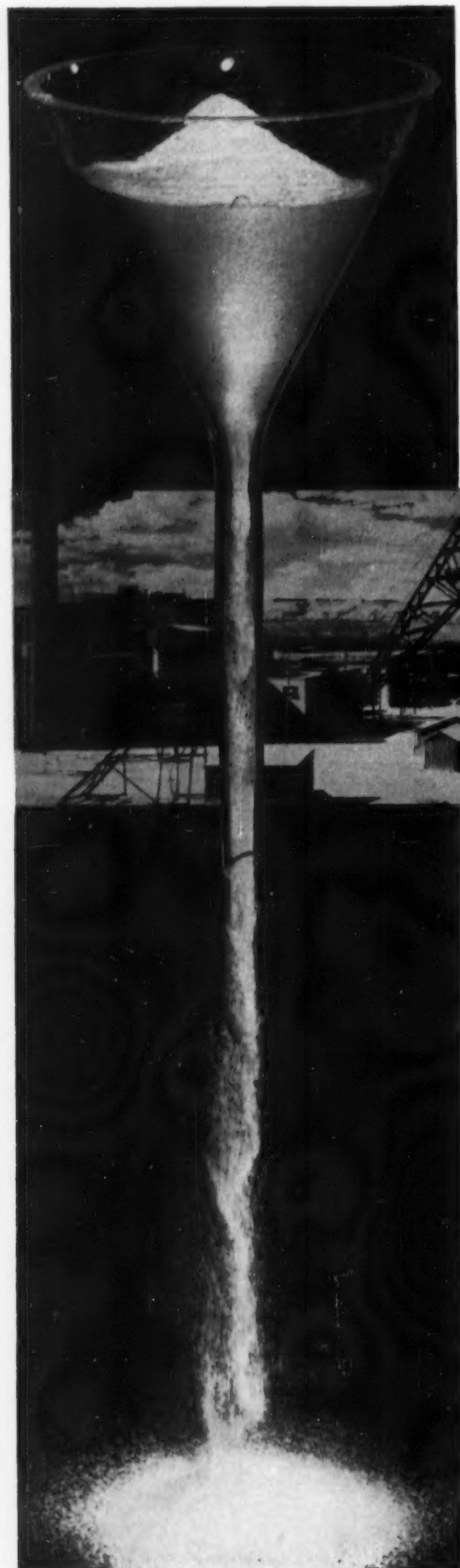


▶ **Speed-spurring layout, streamlined techniques boost control lab productivity p. 62**

Now you can buy almost anything in a transparent package—and that means film sales

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The Paint

that foiled corrosion in a Food Plant

LONG-TIME RESISTANCE to a number of chemicals and high moisture in this food processing plant was provided by paints bearing this mark—

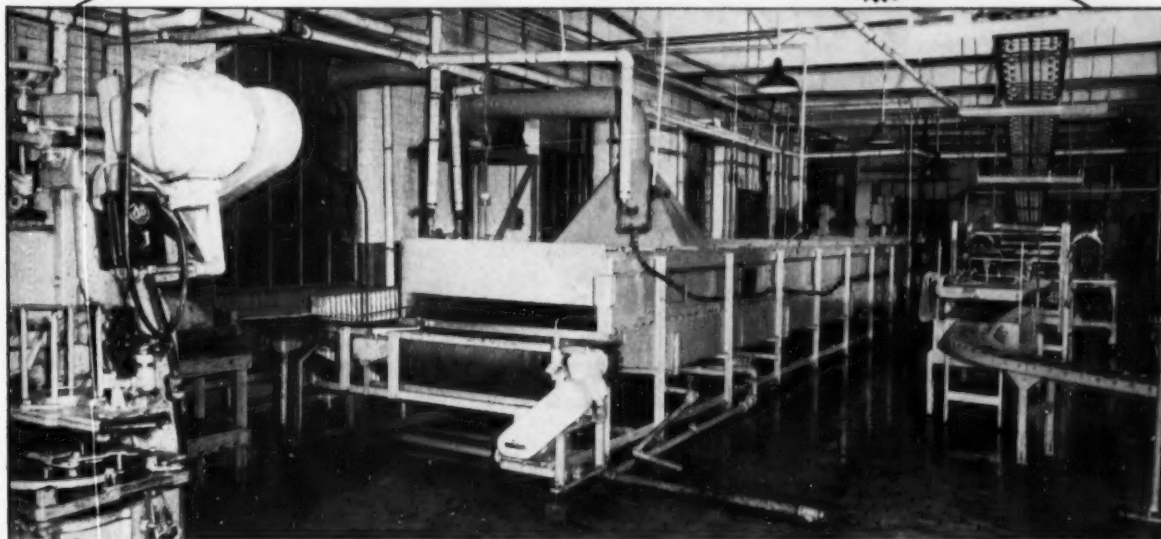
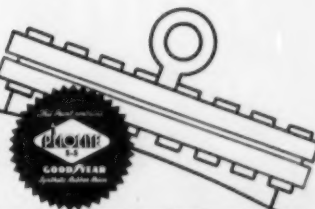


Photo courtesy The Bama Company, Birmingham, Alabama. Also Ingels Manufacturing Company—makers of Magicote Enamels.

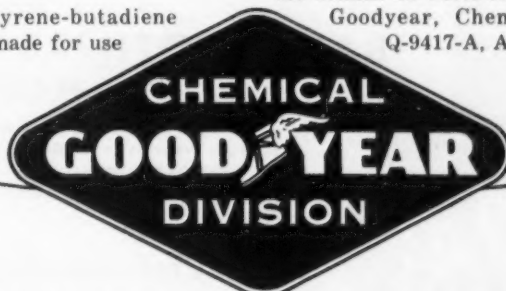
THIS food plant posed a real test for any paint. Sugar, oil and acid attack, steam cleaning, constant high humidity, moist alkaline brick, mildew and fungus growth presented an unusually difficult set of conditions. But paints made with PLIOLITE S-5—on equipment, walls and ceiling—easily met the challenge—maintained their integrity for more than a year at last report.

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Chemical Week—

Volume 74

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May 29, 1954 • Chemical Week

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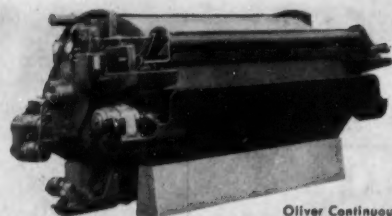
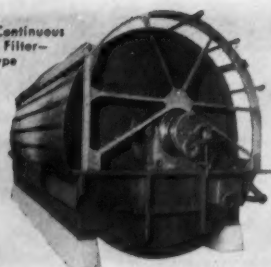
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Oliver Continuous Vacuum Filter

Oliver Continuous Vacuum Filter—Panel Type



Oliver Continuous Vacuum Filter—Open Precoat Type

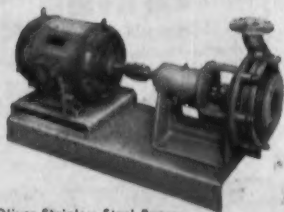
WHY OUR FILTER TYPE SELECTIVITY PLUS OUR FILTRATION EXPERIENCE WILL SERVE

Over the years, Oliver United Design Engineers have spent thousands of hours developing and proving out many different types of filters in the three basic principles of filtration: continuous vacuum, continuous pressure, and batch pressure.

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A FEW WORDS ABOUT OUR PUMPS



Oliver Stainless Steel Pump.
(Cast iron and bronze also available)
Bulletin 310-T.



Olivite Acid Handling Pump.
Bulletin 308-R2.

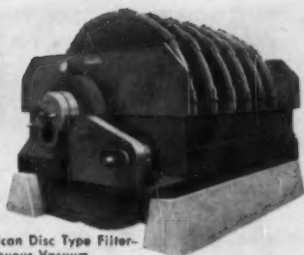


ODS Diaphragm Slurry Pump.
Bulletin 309-R.

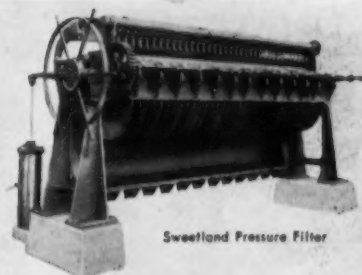
What's your pumping problem? Hot or cold chemical solution? Acid? Alkali? Slurry? In writing for Bulletins describing our pumps, tell us about your problem.



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American Disc Type Filter -
Continuous Vacuum



Sweetland Pressure Filter

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likewise unmatched anywhere
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The real meaning and value of this broad Oliver United service will be clear to you. Wouldn't you be better off in selecting, not from one or two or three different types but from nearly a score of types to find the one best for your problem?

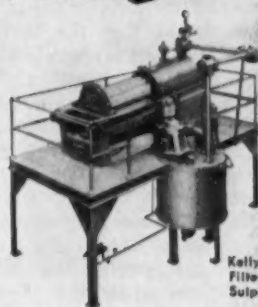
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Wouldn't you also want the recommendations of engineers whose experience beginning in 1907 is as broad as it is long . . . engineers who can focus on your problem the experience developed by serving every industry on thousands of materials all over the world . . . engineers who have complete field and laboratory testing facilities with a variety of small operable filter models at their disposal?

This is the filtration experience and service Oliver United has to offer, likewise unmatched anywhere.



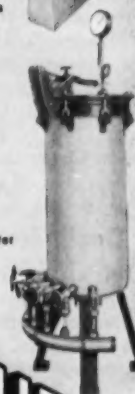
Kelly Pressure Filter



Kelly Pressure
Filter -
Sulphur Type



Oliver Continuous
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Precoat Type



Oliver Pressure Filter

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OPINION

Ten-Armed Cleaner

TO THE EDITOR: . . . Perhaps I shouldn't dare to say it, but I think that sometimes you dote a bit on detergents . . . and perhaps you over-marvel now and then . . .

But you also rile against the Sunday supplement writers who superglorify science—and way down deep I suspect you have a sense of humor . . .

That's why I'm sending you this clipping from the *Sunday Tribune* . . .

ROSS L. TIMKINS
Elkhart, Indiana

Our sense of humor, coming up from way down deep, is titillated by the clip. Excerpts: "Science, wonderful science, has found that the nerve tissue of the squid is rich in isethionic acid, which chemically is related to certain common detergents. Assuming that the squid could excrete its own detergent, all he would need is a set of dishes to establish himself as a kitchen mechanic; he has 10 arms, could wash, polish and dry in one operation."

He could even, possibly, use the detergent to clean up the ocean waters—a performance that would win him the acclaim of all New Deal planners."

Safety Leadership

TO THE EDITOR: "Safest Spot in the House" (*April 17, p. 58*) is excellent. . . . our research laboratories too have compiled a perfect safety record exceeding three million hours.

You should be commended for such splendid recognition of the chemical producers' leadership in safety.

It lends encouragement to safety throughout the industry.

G. G. FLEMING
Safety Director
Celanese Corporation of America
Charlotte, N.C.

Closer Ties

TO THE EDITOR: . . . The news article you published (*April 10*) on Puerto Rico is a fair and objective presentation of our industrial program . . . and we appreciate your interest in our activities . . .

There are, however, two remarks made on which I should like to comment . . . the first may tend to mislead, the second may tend to give an impression entirely different from the one intended . . .

You assert that a Puerto Rican manufacturer cannot sell too much to

mainland customers or he will run into federal income tax liabilities, and if he ships to foreign markets he faces numerous restrictions of various sorts. Actually, from the very beginning of U. S. sovereignty over Puerto Rico, the Federal Internal Revenue laws have been made applicable to Puerto Rico.

Our local producers incur no federal tax liability inasmuch as their sales are concluded and title to the goods is transferred in Puerto Rico to the mainland U. S. purchasers.

Producers, in making export sales, to Latin America and elsewhere encounter no difficulties that are in any way additional to those encountered by U. S. exporters . . . Too, we have the advantage of being closer to Latin American markets, speaking the same language, being better salesmen in those markets . . .

I sincerely regret that your article concludes with the statement that businessmen shy away from Puerto Rico because our people might sometime decide to break away from the U. S. . . . This might cause a great deal of misunderstanding . . .

Anyone familiar with our political situation realizes that our people will not want to sever political and economic ties to the mainland in the foreseeable future. Thereafter, independence is the least likely solution . . .

Even if independence were to come after 50 years, it is reasonable to suppose that continental U. S. interests, including plants, would be placed on an equal or even better position to that enjoyed by similar plants in other foreign areas . . .

I believe it is more realistic to speculate that as we become more and more industrialized, we will be drawn closer to our mainland fellow citizens . . .

There is an unmistakable and rapidly growing feeling of mutual respect and affection between us and, of course, there are very good economic reasons to keep us from drifting away from each other . . .

TEODORO MOSCOSO
Administrator
Economic Development Adm.
Commonwealth of Puerto Rico
San Juan, Puerto Rico

Reader Moscoso is completely right in his first assertion, we misinterpreted the law. The second question, of political climate, is however, one that we feel we presented fairly and should not be misinterpreted. It is unfortunate but true that in many Latin American countries—including

Puerto Rico—the political climate has been such that businessmen have hesitated to build something today that might be lost tomorrow.

We balanced this aspect, however, by reporting that the political party that's committed to holding onto the U. S. connection was "overwhelmingly triumphant in both 1948 and 1952 elections."—Ed.

Seed Treatments

TO THE EDITOR: . . . I have just read your news article "Payoff in Pretreatment" (*April 10, p. 60*) which is concerned with seed treatment.

I wish to compliment you. In my opinion you did an excellent job in handling a somewhat complex subject. . . .

H. DOUGLAS TATE
Manager
Agricultural Chemicals Development
Naugatuck Chemical Div.
Naugatuck, Conn.

Calcium Potential

TO THE EDITOR: . . . You are to be congratulated on your market story on calcium . . . it was concise and of great interest to the field.

Your statement, however, that the powdered metal potential market of 600,000 lbs. at \$1.50 per lb. was "not too attractive" to Ethyl, was not the whole story. Though the potential was there, actual sales commitments at that price amounted to only about 40,000 lbs. That is the prime reason why the project has been shelved . . .

F. H. BALDWIN
Product Development
Ethyl Corp.
New York

Communist Menace

TO THE EDITOR: It made my blood boil to read the piece in your May 1 issue about the International Union of Mine, Mill & Smelter Workers. It seems to me you went out of your way to be nice to a bunch of left-wingers who would probably like nothing better than to see our economic system fall apart.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:
W. A. Jordan, Chemical Week, 330
W. 42nd St., New York 36, N. Y.

A magazine speaking for an important segment of the American industrial economy should certainly not express a sympathetic attitude toward a union like this, and it's ridiculous to lump it with Pope Pius, Churchill and Col. McCormick simply because these eminent gentlemen may have expressed particular opinions that happen to coincide with Mine-Mill's point of view.

You have done a disservice to Americanism, in my opinion, by publishing a report in this vein.

J. J. O'BRIEN
Milwaukee, Wis.

We did not go out of our way "to be nice" nor did we intend to express a "sympathetic attitude." Many chemical firms have to deal—like it or not—with Mine-Mill, and we think we are best fulfilling our aims by presenting as objective a report as possible on the union and its leaders. We certainly agree with Reader O'Brien on the menace of communism, but we disagree that we are doing a disservice to our readers—or to Americanism—by reporting on Mine-Mill in the light of what it says about itself and what its friends and enemies say about it. How else can one form a rational judgment?—Ed.

DATES AHEAD

Manufacturing Chemists Assn., annual meeting and joint outing with SOCMA, Greenbrier hotel, White Sulphur Springs, W.Va., June 3-5.

Society of the Plastics Industry, exposition, technical conference, Public Auditorium, Cleveland and Statler hotels, Cleveland, June 7-10.

American Plant Food Council, annual meeting, Homestead, Hot Springs, Va., June 10-13.

American Society for Testing Materials, annual meeting, Sherman and Morrison hotels, Chicago, June 13-18.

National Fertilizer Assn., annual meeting, Greenbrier hotel, White Sulphur Springs, W.Va., June 14-16.

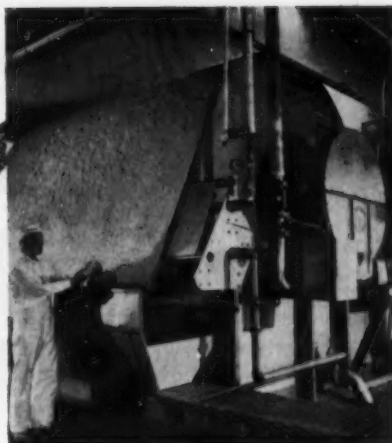
American Institute of Chemical Engineers, special meeting on nuclear energy, Univ. of Michigan, Ann Arbor, June 20-25.

Chemical Institute of Canada, annual conference and exhibition, Royal York hotel, Toronto, June 21-23.

American Drug Manufacturers Assn., annual meeting, Lake Placid Club, Lake Placid, N.Y., June 28-30.

May 29, 1954 • Chemical Week

IN PECTIN EXTRACTION



One FEinc Continuous Filter Replaces Two Presses and Six Men

Looking at this clean, quiet picture, you'd never know this filtration job was formerly a hot, steamy mess, requiring six men per shift to load and unload wet, acid-laden press blankets, racks and press cars of two stop-and-go hydraulic presses.

Now it's a smooth-running, really continuous filtration operation, on this big FEinc String Discharge Filter. Only one operator is now required, with very little to do except watch the cake roll off hour after hour. Even the daily washup takes little time and effort.

Pectin recovery is reported to be as good as formerly. Losses due to leakage and spillage have been eliminated. The dynel cloth on this filter lasts more than a year . . . a substantial saving in the cost of filter cloth.

The pulp is lifted from the filter by continuous orlon strings . . . the famous FEinc String Discharge which successfully handles all types of cakes ranging from thin slimes to thick heavy sludges. There's no smearing, blinding or plugging of the fabric, and no loss due to "blow-back."

You too can improve production rates at lower cost in many of your filtration operations with the continuous . . . really continuous . . . FEinc String Discharge Filter. Find out more about what these versatile efficient filters can do for you. And ask about the new FEinc Horizontal Rotary Vacuum Filter for crystalline or fibrous pulps. Write today.

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Bulletin 103



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NEWSLETTER

Still up in the air is the future extent of private participation in atomic power. Being readied is a second version of the bill to foster industrial atomic development, which the joint Congressional committee hopes will answer many criticisms of the first version (CW, May 22, p. 19). Hearings are continuing, and Congress is driving to pass legislation this year.

But it's a sure bet that all of industry, labor and public power spokesmen's objections can't be overcome—there's no common ground on many important issues:

- **Patents.** Industry agrees with the bill's provision of normal patent procedure except in the weapons field; but labor and public power advocates want compulsory cross-licensing.

- **Ownership of nuclear fuel.** The bill provides for government ownership, but industry argues that private ownership would ease financing and would not militate against national security.

- **Licensing procedures.** The bill as now written requires nine or more different licenses in connection with research, development, construction and operation of nuclear power plants. Industry wants clarification and simplification of these procedures.

Outlook: the patent issue will be compromised to give AEC limited regulatory power; ownership of fuel will be retained by the government; licensing procedures will be simplified.

•
If you've been worried about tariffs, you can breathe easier this week: a showdown on the issue has been postponed until next year.

President Eisenhower agreed to settle for a simple one-year extension of the Trade Agreements Act, gave up his fight for a three-year extension with additional tariff-cutting authority. In doing so he took the advice of GOP Congressional leaders, who insisted that a Republican split over tariffs would weaken the party at the polls in November.

Clarence Randall's commission and the State Dept. had urged the President to fight for a three-year trade bill. But Daniel Reed (New York), protection-minded chairman of the key House Ways & Means Committee, apparently agreed to expedite passage of a one-year extension in exchange for White House acquiescence in postponing a showdown.

Immediate effects of the decision:

- Trade with Europe will continue to be hampered by lack of currency convertibility; any major European moves toward convertibility will likely be postponed another year.

- U. S. tariffs will stay about where they are for at least another 18 months, frustrating the Administration's hopes for a new round of tariff negotiations next spring.

•
Chemical companies that mine salt, chemical limestone and phosphate rock are following closely the fate of depletion allowances under the omnibus tax revision bill. The Senate Finance Committee has now made these changes in certain House-approved provisions:

- Boosted depletion allowance on salt from 5% to 10%.
- Deleted specific reference to chemical limestone (although the

material will continue to receive the same 15% allowance that applies to most other varieties of limestone).

- Granted phosphate rock mining firms the right to charge off depletion against gross income from sintered or nodulized rock, rather than raw rock.

•
The food additives fight is still flaring. Since hope has been abandoned for an interindustry compromise on legislation (CW Newsletter, March 27), various industry groups are now sponsoring their own bills for trading purposes. The milling, baking and meat industries, whose earlier bill (H.R. 8418) contained several provisions conciliatory to chemical additives makers, have now had a new bill introduced that makes no such concessions.

•
The government may finally get out of the paint manufacturing business. The House Government Operations Committee unanimously adopted a subcommittee's report (CW, May 15, p. 20) pooh-poohing the Navy's contention that it has to make its own paint.

But the committee's investigations yielded a significant by-product. The group has asked the General Accounting Office to check whether title to the patent on a phenolic-based antifouling paint manufactured by the Navy should remain in private hands. At issue: how much the government contributed to development of the paint.

•
Nobody wanted to make calcium carbide in the government-built plant at Ashtabula, O., advertised for sale recently (CW, Newsletter, April 10). Highest bid for the \$3½-million plant was \$151,000—by a metals firm presumably interested in its scrap value. In 1947 the government rejected a bid of \$770,000.

•
If you can't get enough technical manpower, use technical womanpower. That's the thought behind a conference scheduled later this month at Bryn Mawr College at which invited representatives from industry will meet with educators to explore the possibilities of a wider role for women's colleges in supplying technically trained personnel. Some of the approaches to be studied: more industry-supported scholarships; better training for high-school science teachers so that more students—both male and female—will be attracted to science careers; summer employment of college women by industry.

•
The usual news about the chemical industry is expansion, new plans, new products—but there's an occasional cloud: Diamond Alkali is shutting down its refractory periclase plant at Painesville, O., says it can no longer compete with lower-cost European imports. And the textile slump is to blame for Du Pont's layoff of 150 workers at Martinsville, Va., 200 at Chattanooga, Tenn., and 135 at Seaford, Del.

•
While the industry was patting itself on the back during Chemical Progress Week (see p. 14), a college professor, Dean O. W. Hyman, Univ. of Tennessee, was giving it a firm kick. He charges that industrial research comes up with a very few ideas, and for self-preservation the industry must endow professorships in the smaller colleges. "Industry," he insists, "doesn't produce chemists—it only consumes them."

... The Editors

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BUSINESS & INDUSTRY . . .

Buoyant Bustle

Things are stirring in the synthetic rubber business this week as chemical, petroleum and rubber companies—possibly as many as 60 of them—submit their bids on the 27 government-owned plants now up for sale.

Officials of the Rubber Producing Facilities Disposal Commission—whose job it will be to negotiate sales contracts and present them to Congress next January—are hoping that this last-minute bustle will have a buoyant effect on the bidding. Their aim: to recover for taxpayers as much as possible of the more than \$500 million that the government invested in these plants during and after World War II, rebut charges by foes of the Eisenhower Administration that this is a “give-away” program.

Among eleventh-hour developments was formation last week of two new corporations to go into synthetic rubber production and sales. In one instance, two leading chemical concerns—American Cyanamid and Dewey and Almy—teamed up with 27 manufacturers of shoes, insulation and other rubber products to form the American Synthetic Rubber Corp. The other new entry is Petroleum Chemicals, Inc., a joint venture of Cities Service and Continental Oil Co.

Keen on Butyl: Petroleum Chemicals, which is to specialize in butyl rubber (GR-I), hasn't indicated whether it will bid on any of the government-owned plants. However, there were grounds for speculating that its management might have in mind a site near the government-owned, Cities Service-operated butadiene plant at Lake Charles, La.

Cyanamid, which is putting up about \$2 million of the other new corporation's \$6.6-million authorized capital, is the only member of that firm's sponsoring group that intends to sell its share of production on the outside market.

Fifteen of those sponsors are now among the 19 participating companies in Kentucky Synthetic Rubber Corp., which has been operating the copolymer plant at Louisville since 1950. This has led to a prediction that the new enterprise will bid on the Louisville plant, but it's entirely possible that experience there has shown that the Kentucky location is uneconomic.

Thiokol Chemical Corp. of Trenton, N.J., is a participant in the Kentucky joint venture; but instead of going along with the majority of that group in sponsoring American Synthetic, Thiokol is linking up with the other new corporation, Petroleum Chemicals. The plan is for Thiokol to handle research, development, sales.



TEXAS' JOHNSON: He wants to keep the government in the smelting business.

Texas Tin Reprieve?

The fall of Dienbienphu may have direct consequences for Texas City, Tex., and the operation of the \$11-million government-owned tin smelter—only one in the U.S. The pressure of military events in the big tin-supplying area of Southeast Asia apparently has won new Congressional support for continued operation of the smelter and has weakened the Administration's proposal for an immediate shutdown.

Vital Insurance? Spearhead of efforts to gain at least a year's reprieve for the plant is Texas' powerful Sen. Lyndon Johnson. Together with Congressman Clark Thompson, who represents the Texas City district, the Senate minority leader has introduced a joint resolution to (1) keep the government smelter active until June 30, '55, and (2) create a special Congressional committee to investigate the “desirability of a permanent do-

mestic tin-smelting industry.”

Johnson's argument: the Texas City plant is absolutely vital to U.S. defense needs; as a Western Hemisphere source of tin, it is insurance against Southeast Asia's vulnerability to Communist attack.

Johnson's resolution will get backing from State Dept. officials who contend that the smelter is an important economic prop for Bolivia, a recipient of considerable U.S. aid. The South American country now ships the bulk of its low-grade tin ore to the Texas plant.

Or Needless Expense? The Administration view is embodied in a resolution introduced by Rep. Jesse Wolcott (R., Mich.), chairman of the House Banking Committee: to close the plant June 30 of this year, and sell or lease it to private industry.

The Administration's argument: the nation's tin stockpile is spilling over with a huge surplus—enough for at least six years of U.S. tin consumption. In case of war, a smaller, more efficient smelter for Bolivian ores could be built within 18 months. Its original objectives achieved, the high-cost smelter, operated by the government since 1942, is no longer needed.

Hearings have already been held on the Johnson proposal by the Senate Preparedness subcommittee, headed by Sen. Leverett Saltonstall (R., Mass.), but no decision reached. Additional hearings are expected this week—with probable favorable results for Johnson, the committee's ranking minority member. Hearings are also expected soon before Wolcott's committee where the Administration stands a better chance.

There is little chance, it seems, for a compromise proposal suggested by some Administration officials—to keep the smelter on standby. Reason: mothballing expenses for two or three years would exceed the cost of rebuilding facilities.

Behind the scenes, it is reported that a syndicate representing the Bolivian government and private U.S. capital has made overtures for purchase or lease of the plant.

Chances are, what with the Texas senator and Dienbienphu, the government will find it harder than it thought to get out of the tin-smelting business.



ORANGE DEDICATION: Allied, in Texas, christens a petrochemical plant.

Parade of Progress

Aim of Chemical Progress Week: to acquaint the public with the important job being done by chemistry (Houston Post, May 16)

Mayor Ben West signs Chemical Progress Week Proclamation (Nashville Banner, May 12)

CHEMICAL PROGRESS TO BE SPOTLIGHTED (Memphis Commercial Appeal, May 11)

Gov. Stanley praises chemical industry (Roanoke Times, May 8)

PROCLAMATION CITES ADVANCE OF CHEMISTRY (Boston Herald, May 16)

Gov. Fine extols achievements of chemistry (Philadelphia Inquirer, May 10)

Special events throughout the nation celebrated Chemical Progress week last week, but none was gayer, more colorful than Allied Chemical & Dye Corp.'s petrochemical plant dedication at Orange, Tex.

Business, industrial, civic and political leaders from the entire southeastern Texas area (numbering some 500) gathered together on Thursday, May 20, to officially launch the latest Allied venture. Principal speakers: Texas' Lieutenant Governor Ben Ramsey, and Hugo Riemer, Allied's Nitrogen Div. president.

Taking advantage of the public flag-raising ceremony to reveal company expansion plans ("in the immediate future") to extend production to include mono-, di-, and triethanolamine, Riemer also predicted other significant developments soon.

Meanwhile, in Washington, Manu-

facturing Chemists Assn. officials estimate that more than 35 million Americans were reached by Chemical Progress Week activities. Mention of the various events were made on 42 radio and television shows, including 10 network programs. In addition newspapers (see headlines above) carried the message "Chemistry Makes It Better" to millions of readers.

A Studied Look Ahead

Centering attention on the future for chemistry in the fields of rubber, petrochemicals, synthetic fibers, plastics and wood, over 400 members of the Chemical Market Research Assn. in New York last week also paid tribute to Chemical Progress Week.

Setting the pace: R. G. Gustavson, president, Resources for the Future.

His basic contention is that technology rests primarily on two pillars—science and cooperation. There's no denying the impact of technology on the world we live in today, but it's equally important for men to remember that the goal of scientific study is the greater happiness of all mankind.

Picking up the lead: Goodyear Tire's Ray P. Dinsmore. Suggesting that rubber companies' sales will probably be off 10-20% this year, he asserts that the position of the synthetic rubber producers "would be greatly improved if the government got out of the rubber business." Also, if the rubber companies could take over the major part of GR-S production, it would mean an annual dollar volume increase of \$250 million for the industry.

Purchases by the rubber companies from regular chemical companies ("except as the volume is affected by the condition of business as a whole"), he avers, shouldn't drop much, this year. "Increased chemical activity of the various rubber companies adds to rather than subtracts from their purchases."

Sizing up the outlook for petrochemicals, National Distillers' Robert Hulse says the major weakness of the chemical industry today is simply a matter of supply catching up with demand. He points out that sales volume of major petrochemicals "is at least as high, if not higher than in preceding years." Oversupply, obviously, is partly due to the lure of rapid tax write-offs, which provided an incentive for expansion.

Competition, however, will probably force some more expansions—at least for a while. Why: "Successful petrochemical projects must be large-scale and thoroughly integrated."

Looking at the future in paper industry by-products, West Virginia Pulp & Paper Co.'s Paul Wiley asserts that the long-range future "is very interesting." Experimental work is currently under way to break lignin down into compounds of lower molecular weight, and structural studies on a host of products—all closely connected to benzene derivatives—are well advanced.

That West Virginia is also engaged in piloting lignin-rubber production, Wiley admits, but says "it's simply a marketing device"—not a move to get into rubber production.

Taking the lead for plastics and synthetic fibers: Celanese's J. D. Fennebresque. "The dominant factor in synthetic fiber production," says Fennebresque, "is its inherent need of large scale production to achieve

economic operation." There's no all-purpose fiber, will probably never be one. The trouble much of the industry has encountered is that many products have entered end uses for which they weren't suited. "The retail promotional value of many new and highly publicized fibers has caused a host of troubles."

But that situation's mostly cleared up now—and although the textile industry is currently burdened with a host of problems, the long-term future is reasonably rosy.

True to Form

This week's addition to the rollof of corporate acquisitions is like the play-back of a World Series game. Everything pointed to Air Reduction's move; all the signs indicated that Colton Chemical would yield to the pressure of increasing competition in polyvinyl production. But few observers in the chemical industry thought events would move so quickly.

In essence, the transactions are simple. Air Reduction Co. acquires all assets and business of Colton Chemical Co., Cleveland, and in return, Colton stockholders receive approximately \$10/share for their common stock plus an additional 50¢ when all phases of the move are concluded. Since Colton stock was offered at \$3/share when originally issued to the public in 1943, this deal presents a healthy return on investment.

Subject to stockholder approval, Air Reduction will operate its acquisition as a division and will probably keep the organization virtually intact. Colton products (basically polyvinyl emulsions, polyvinyl alcohol, and a foamed urea-formaldehyde resin) will continue to be marketed under the firm's tradenames.

But events that preceded the move should have telegraphed the play to any alert observer. H. Seymour Colton, president, admits quite frankly that though he's disappointed to lose his firm's identity, "uncertainty of the future" caused him to recommend sale to Airco. Profits last year amounted to \$79,070 (from sales of \$1.2 million), and the outlook was anything but cheerful.

"Six months ago," points out Colton, "there were four producers of polyvinyl alcohol and acetate in the U. S. and Canada—Du Pont, Shawinigan (Canada), American Polymer and Colton. Du Pont was enjoying about 90% of the U. S. market, with American Polymer and Colton evenly splitting the rest." Colton was satisfied to operate on such a basis.



HILL: Will next build a vinyl acetate monomer plant at Calvert City.

But then came the Borden Co.'s purchase of American Polymer. And to cap it—Air Reduction's decision to get into the polyvinyl business with a 30-million-lb./year monomer plant at Calvert City. "The pinch of big competitors looked too much to handle," says Colton. "When Airco made its bid—at the price it offered—there was nothing to do but accept." Adding to the value of Colton (as far as Airco is concerned): Possession of specific know-how that will enable Airco to get its monomer plant into operation smoothly. Initial operation is scheduled for early 1956, may be moved up now that Colton is in the picture. Construction costs haven't been calculated, but Airco is hoping to drive a wedge in the polyvinyl market. On the credit side of the ledger: Air Reduction, by building at Calvert City, will be taking advantage of unlimited raw material—pipeline acetylene from its calcium carbide plant now in operation.

According to John A. Hill, Airco president, no plans are now under consideration for other company purchases in the near future. Colton is a specific example of a company that was sought mainly for the knowledge it possesses. Too, a number of other well-established firms were known to be in the running; Airco couldn't afford to let its opportunity pass. Result: the deal was consummated much sooner than anyone expected.

Looking ahead some 18 months, company officials foresee a three-cornered fight for position in the polyvinyl acetate race, but think that, with Colton, they stand a good chance of corraling a goodly share of the purse.

Slow Motion on Hill

Particularly agonizing to chemical companies is the slow, uncertain movement of the tax revision bill on Capitol Hill, where the Senate Finance Committee is reshaping the House-approved measure, line-by-line.

Wording of the clauses now being worked over by the committee can make thousands of dollars' difference in the 1954 taxes to be paid by chemical concerns.

Among provisions undergoing senatorial surgery:

- The committee voted down the proposal of Sen. John Williams (R., Del.) to cut down depletion allowances on oil, gas and sulfur; but Williams is expected to push this change (which would increase taxes directly and prices indirectly on those materials and their products) when the bill is reported out to the full Senate.

- Income averaging may be liberalized for inventors. The Senate group feels that an inventor who works on an invention for 24 months or more and then sells or assigns it, receiving 80% or more of the price or consideration in one calendar year, should be allowed to average out that income—for tax-reporting purposes—over a five year period.

- Opposing the House-o.k.'d clause that would permit more large corporations to file consolidated returns covering themselves and their affiliated companies, the committee favors standing pat on present rules.

The legislation has top priority in the Senate, but disagreement over some of its many proposals has braked it progress. And the Democrats are sure to renew their slugging at some provisions when the bill reaches the floor of the Senate.

Boomerang?

First of the Philippine basic industries to falter under post-Korea commodity shakedowns and to lose out to overseas competition is plantation rubber. Five out of seven plantations in the Islands have already shut down; the remaining two are anxiously soliciting government aid to survive.

Basic request of the planters: a government waiver of the 7% sales tax currently collected on natural rubber.

But actually—and seldom admitted—what has hurt them even more than the tax is a government regulation requiring planters to sell their product at home "at the equivalent of over-

seas market quotations"—rather than at the price (considerably higher) charged by importers of synthetics. Too, only rubber not absorbed domestically under these terms is eligible for export.

The rubber planters feel that if they're granted permission to sell at competitive prices with synthetic importers at home, the crux of the problem will be solved. Plantations already in existence in Basilan, Kabasalan and Zamboanga can produce twice as much rubber annually as is consumed domestically.

Now the issue has become a political football. Rather than renege on its stand that export-import trade is a vital consideration for Island subsistence, President Magsaysay's government will probably try first to conjure up some financial method to tide domestic rubber producers over the crisis until world demand for rubber rises.

COMPANIES

Durez Plastics & Chemicals, Inc. has started excavation work for a \$100,000 addition to its North Tonawanda, N.Y., plant. The new unit will be used as a pilot plant, is due for construction in August.

Spielman Chemical Corp. has filed articles with the secretary of state, Albany, N.Y., changing its name to Independent Chemical Corp.

Victor Chemical has started construction on production headquarters for its organic-phosphorus compounds at Chicago Heights. Scheduled for fall completion, the unit is being built by Abel Howe, Chicago contractor.

Virginia-Carolina Chemical Corp., Richmond, Va., has acquired the Cumberland Chemical Co.'s Hopkinsville, Ky., fertilizer plant, and will take over operations July 1. Purchase price has not been revealed.

Mobay Chemical Co. (the company formed by Monsanto Chemical Co., St. Louis, and Farbenfabriken Bayer, A. G., Leverkusen, Germany) has been incorporated in Delaware (CW, May 1, p. 26). Officers of the new company include Monsanto's David Eynon, and Bayer's Oscar Loehr. Temporary headquarters will be in St. Louis. Site for the proposed isocyanate unit hasn't been selected.

Reichhold Chemicals Inc., whose fi-

nances, sales and other corporate data have hitherto been unrevealed, within the next few weeks will issue its first public annual report.

EXPANSION

Latices: Witco Chemical Co. (New York) is expanding its activities in Great Britain. Its affiliate Witco Chemical Co. Ltd. (London, Eng.) has acquired a plant and research laboratory at Droitwich, Worcestershire, England.

Main products, at present, are synthetic latex compounds for use in emulsion paints. It is planned, however, that ultimately the British company will also manufacture a line of products similar to that of the parent U.S. concern.

According to the company, the laboratory will make available to British industry research facilities, which, until now, have been available chiefly from the Ministry of Supply.

Mixed Fertilizer: Tri-State Chemical Co. will begin production at its \$150,-

000 mixed fertilizer plant at Springdale, Ark., in June.

Uranium: Vitro Uranium Co. will increase capacity at its Salt Lake City uranium mill by 50% over the next two years. Cost: \$200,000 this year, and \$300,000 in 1955. Major construction work will be concerned with additions to the company's roasting units.

Vinyl Acetate: Air Reduction Co., Inc., will build a vinyl acetate monomer plant at Calvert City, Ky. Capacity: 30 million lbs. of vinyl acetate monomer per year. Acetylene will be piped from Air Reduction's National Carbide Div.'s calcium carbide plant; the unit's scheduled for completion early in 1956. Also supplied (or to be supplied) by acetylene piped from National Carbide's acetylene-generating plant: B. F. Goodrich Chemical Co.'s vinyl chloride plant, Goodrich's acrylonitrile plant (now under construction), and General Aniline & Film Corp.'s contemplated butynediol, propargyl plant.

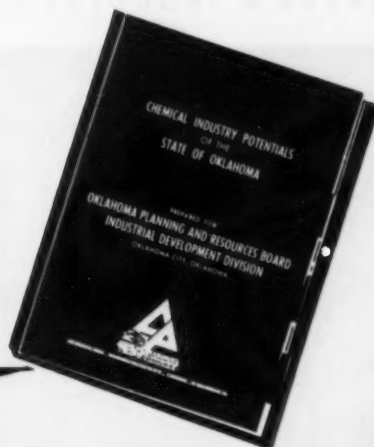


Labor-Management Neighbors

A 'GOOD NEIGHBOR' POLICY appears to be in the making at Pearl River, N.Y., where the union office will be right across the road from Lederle's plant. Another unusual touch: the union office building was purchased from the company, which had been using it as a temporary office. Looking on as

building is placed in new location: H. M. Perkins, plant superintendent of Lederle Laboratories Div., American Cyanamid Co.; Alexander Zilko, president, Local 143, International Chemical Workers Union (AFL); E. W. Fialek, Lederle's labor relations manager; and Roy Hall, v.-p. of Local 143.

not just another report



A FACTUAL ANALYSIS BY COMPETENT AUTHORITIES OF OKLAHOMA'S CHEMICAL INDUSTRY POTENTIALS

This is a factual, preliminary engineering report designed and prepared by the skilled facilities of the Chemical Plants Division of Blaw-Knox Company, for the State of Oklahoma and is available to you.

The chemical industry is viewing Oklahoma's natural resources in terms of new plants and plant expansion. Oklahoma's abundance of raw materials: refinery gases, salt and oil field brine, limestone, natural gas, silica sand and coal, make it attractive for specific processes and products. Thus, Oklahoma is ready to go.

Within a 500 mile radius of central Oklahoma, there is a population of 37,822,000—annual income payments of \$52,760,000,000—retail sales of \$37,917,521,000 and bank deposits of \$35,681,794,000. These advantages await you.

The Oklahoma Planning & Resources Board has pioneered the way to the development of the chemical industry with this report. For a more specific, scientific and organized approach, tailored to fit your needs and requirements, write in *complete confidence, at no obligation.*

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MUCH LIKE U.S. counterparts is French chemical plant where Andre Nicaise punches time clock, gets latest word on fire safety.

Old Firm Goes Modern:

Hors d'oeuvres on the House

show new spirit in French chemical industry

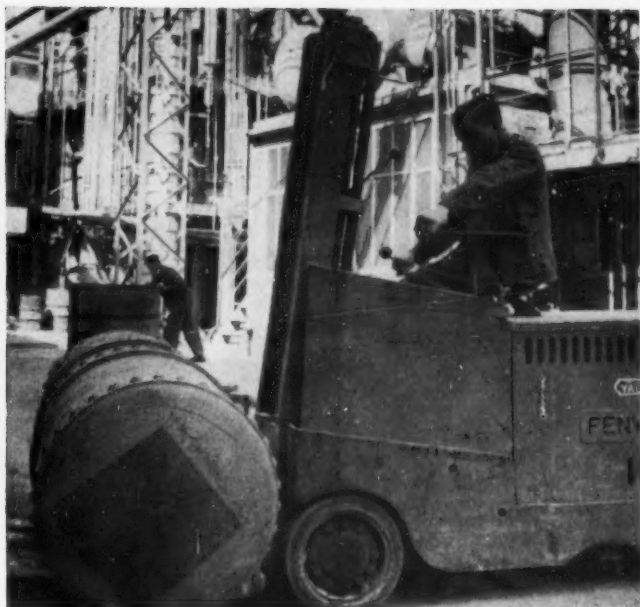
Don't judge the strength and vitality of the chemical industry in France by the shakiness of the French government in the political, military crises that have rocked Paris this month.

A look through the CW CAMERA into a day in the life of a French chemical worker shows that the French chemical industry is no longer just a hodge-podge of tiny shops

shackled by stodgy tradition. More representative of the industry today is the flourishing, forward-looking Rhone-Poulenc Co., which has agents and subsidiaries around the world



INCOMING SHIPMENTS must be checked, tested, delivered by 8-man team headed by Nicaise, who in 12 years worked up to his . . .



POSTWAR POLICIES of company brought modern methods, also cafeteria where subsidized meal includes hors d'oeuvres, red wine.

and which employs more than 15,000 persons in France—among them one Andre Nicaise, a head storekeeper in the Rhone-Poulenc works at Vitry-sur-Seine, on the outskirts of Paris.

To accompany M. Nicaise during his daily stint at that plant is to be impressed by the extent to which modern methods of business organization, production and materials handling are transforming the French chemical industry.

Tonnage Is Up: Nicaise, a confirmed family man who has been working at the Vitry plant for the past 12 years, started out as a laborer in the warehouse and now is in charge of an eight-man storekeeping team that's responsible for ordering materials, checking deliveries, keeping inventory records and making sure that supplies flow steadily to where they're needed.

About 35 tons of raw materials are

used each day by the department in which Nicaise works. Two years ago, the tonnage handled was considerably less; the increase was made possible by an improvement in mechanized packaging methods.

Nearly all of the Vitry plant—which employs 2,200 men and women—is new or has been remodeled since World War II ended in 1945.

Pre-Napoleonic Origin: At this



present job, head storekeeper. At end of 8-hour day, he changes out of company-supplied work clothes, drives home along the Seine.



WITH NINE CHILDREN in family, supper is big get-together. Half of Nicaise budget goes for food; clothes are homemade.

plant, Rhone-Poulenc produces more than 1,000 pharmaceuticals and other chemicals; at other locations* the company makes resins, paint and varnish solvents, rubber chemicals, cellulose acetate for textiles, tanning and photographic chemicals, dyes, syn-

* Notably at plants in Rousillon (province of Isere), Saint-Fons (Rhône), and Elbeuf (Seine Inferieure).

thetic ingredients for perfumes, agricultural chemicals such as insecticides, and hormones.

Working for one of France's oldest and largest chemical firms—Rhone-Poulenc predecessor companies Societe Chimique des Usines du Rhone (founded in 1801) and Etablissements Poulenc Freres (started as a

Paris drug store in 1827) were merged in 1928—gives Nicaise a feeling of security. His wife, Madeleine, affectionately calls the company "Poulenc"; she says she's glad her husband works for a company "where he is well treated and where his bosses have a high opinion of him."

Babies Boost Income: At the Vitry



HIS COMPANY helped finance this stone house; Nicaise and sons did most of work. Radio is parents' only entertainment.

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In many plants, deliveries of isobutyl acetate are being made directly into the tanks formerly used for *n*-butyl acetate. These companies are making an extra profit on every gallon of lacquer that leaves their plant.

Today, Eastman isobutyl acetate is finding wide acceptance as a lacquer solvent in its own right as well as a satisfactory replacement for *n*-butyl acetate. Its quality is uniformly high. Its price is low and stable.

For detailed information on how this Eastman solvent can reward formulators interested in exploring new ways to cut costs, write to Eastman Chemical Products, Inc., Chemicals Division, Kingsport, Tennessee.

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plant, Nicaise and his fellow workers put in a 44-hour week, one hour less than the average in the industry. French chemical wages range from 33¢ to 55¢/hour, but various fringe benefits (including a family allotment and productivity, vacation and Christmas bonuses) brought Nicaise's average weekly pay for 1953 to about \$40. Also, there's a state-sponsored family allowance of about \$4/week for each dependent child plus lesser credits; this brings the Nicaise family (nine children, ages 1 to 16) an additional \$40/week. The family allowance is paid out by the French government, but the money is raised by a payroll tax of about 45%.

Out of the total weekly income of \$80, the Nicaise family spends \$40 on food and \$18 on mortgage payments. Clothing takes about \$8, even though Mme. Nicaise makes all the clothes for herself and her children, and the younger children usually wear clothes outgrown by the older ones. Utility bills and miscellaneous expenses account for \$7, and the remaining \$7 go into savings.

Most French chemical workers aren't members of labor unions, although nearly every plant is at least partly organized.

Other examples of the company's benevolent attitude toward employees:

- The Vitry plant's lunch room, where an employee may buy for 28¢ a hot lunch (hor d'oeuvres, meat, two vegetables, cheese, fruit, wine) that costs the company about 65¢.

- Work clothes, all furnished, laundered and mended at company expense.

- A pension plan under which an employee retiring after 40 years of service would receive payments equal to 60% of base pay at time of retirement.

- A special welfare service, with two social workers calling on workers' families to advise on domestic problems.

Nicaise and the other chemical workers in France—who number about 230,000—have been giving a good account of themselves in recent years. While France's total industrial output dipped 3% last year, chemical production rose 5% to an all-time high, 53% above the 1938 level. It seems certain that regardless of what happens in Indochina this summer, Nicaise and his fellow workers will be helping the French chemical industry to loom even larger in the material and economic strength of the Western allies.



FTC'S MASON: Will agency he called "stuffy, despotic" junk "gobbledegook"?

Curtain Raiser

Dismissal of price discrimination charges against the country's second largest manufacturer of household bleaches last week provides a sample of the Federal Trade Commission's new policy aimed at letting businessmen know what's going on in that agency's enforcement field.

Under the old policy, the hearing examiner's decision that Purex Corp. is not guilty of violating the Robinson-Patman Act would have been announced in a single sentence. But the new system called for by Chairman Edward Howrey resulted in release of a 68-page opinion by the FTC hearing examiner, so that all persons in industry can learn just what principles were involved in the Purex case and can profit therefrom.

Another way in which Howrey is trying to raise the curtain of doubt and uncertainty that has shrouded some of the commission's work is through elimination of "legal gobbledegook" in decisions. This has long been urged by veteran FTC member Lowell Mason, who occasionally has shocked Washington's bureaucratic lawyers with his blunt, plain-spoken opinions. (Mason was in the news again last week, holding that an FTC hearing examiner should have the power to dismiss a complaint when the agency's investigators feel the case lacks public interest.)

Anti-Ambiguity: Like other procedural and administrative actions adopted recently by the new Republican-majority FTC (CW, May 22, p. 34), the new policy is aimed at giving businessmen clearer, more

complete rulings on what they may and may not do under antitrust law.

Recalling criticisms—old and new—that FTC's written decisions often are "masterpieces of ambiguity," Howrey spurred these reforms:

- Hearing examiners are directed to abandon formal, legalistic findings and to adopt instead narrative, descriptive reports that will give a history of the case, all the facts, all the findings, together with the conclusions and the reasons for them.

- The form and content of "cease and desist" orders should be improved so that prohibitions deal with specific issues and are worded so clearly that they leave no doubt as to what is ordered.

- The commission, in reviewing these initial decisions and orders of examiners, should issue new findings of fact only in rare cases—and then only if such changes are pointed out and amendments made in the order.

- The commission should write an opinion in every case—not just in those cases in which the decision supports the FTC's original charges.

There's little question that all these reforms are eminently desirable. The antitrust laws themselves are often vague or complex, and legalistic and confusing decisions by FTC sometimes have tended to make the borderline between lawful and unlawful practices even hazier. But like passing laws against sin, reforms of this nature often have not materially changed things.

Long but Lucid: The long decision by Hearing Examiner John Lewis in the Purex case—complete with a 1½-page index to points covered—is a good example of what Howrey wants. It goes into item-by-item detail in explaining the dismissal action. Of interest to all chemical manufacturers is Lewis' denial of the FTC lawyers' contention that showing injury to one rival concern is enough to establish a violation. Lewis ruled that Purex—by cutting prices in one or more geographical areas—might have hurt one competitor, "but it does not follow that competition has been affected." He termed "insubstantial" the prosecutors' evidence that other competitors had been injured.

If the new reforms are carried out regularly with this same clarity, it's to be expected that a considerable body of legal precedent will be built up for the guidance of all industries. This could result in substantial savings in time, effort and money for chemical producers who frequently have been completely in the dark as to what's lawful, what isn't.



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*The Journal of Pharmacology and Experimental Therapeutics—Vol. 104, No. 2, Feb. 1952.

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OFFICIAL PRESENTATION: Grover Hartt (left) gets his option from Timpson toastmaster Edmond Hebert at Chamber of Commerce "cooperation dinner."

Water Is the Bait



but the catch is well worth the effort. That's what the residents of Timpson, Tex. (pop. 1,455), are discovering this week as they prepare to dangle more tantalizing bait* before Grover Hartt, Dallas oil man and president of the newly organized United Chemical Co. Latest lure: a free plant site, and the offer to build a dam and reservoir, if Hartt will but agree to build his \$17-million urea fertilizer plant at Timpson. Dressing it up: the Timpson Chamber of Commerce presented its options (on a 166-acre plant site, and a proposed 300-acre reservoir) to Hartt at its annual barbecue dinner, promised wholehearted cooperation.

Power of Water: Thoroughly aware that a dependable water supply is essential to incoming industry, Timpson officials say development of water resources comes high on their list of proposals to insure the town's growth. Situated as it is in East Texas (close to the Louisiana border and about 160 miles northeast of Houston), Timpson gets enough rainfall each year to support industry (about 35-

Attracting chemical enterprise into a new area takes skillful angling,

55 in.). But unless dams and reservoirs are built to store runoff water, there's likely to be a dry spell each year—during which any industry requiring large quantities of water would suffer.

That's why Timpson decided to lure newcomers first by offering to pay for water development. Engineering plans now are complete for two dams and reservoirs, one covering 200

acres and the other 300 acres. However, the first industry that comes into the area must be a large enough consumer of water to justify citizens of the water district in going ahead with the financing—damming a tributary of the Attoyac River to form a small reservoir would cost \$300,000 to \$350,000. So Timpson naturally is anxious to land Hartt's big urea plant as its first catch. Reason: the plant would require 3 million gal. of water per day—enough to justify the cost of construction.

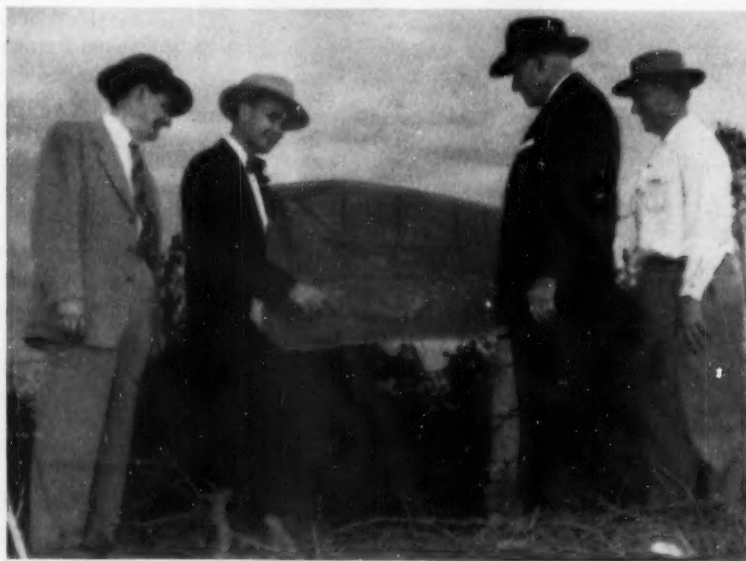
Other Natural Resources: But adequate water at competitive cost is not all that Timpson is offering. Goaded by the success of other East Texas communities in attracting industry, it is determined to exploit its other advantages, too.

For one thing it's offering cleared plant sites free to industrial builders.

Other lures: abundant natural gas, large lignite deposits.

In particular, the Timpson site has a special appeal for Hartt: he hopes to sell his fertilizer to farmers in the surrounding East Texas and western Louisiana area. The region within 200 miles represents 60% of the fertilizer market in Texas.

Currently, Hartt is lining up financial backing for his proposed urea plant, expects most of the capital to come from insurance companies. In operation, he would employ more than 200 people, have an annual payroll of \$1.2 million. If diminutive Timpson does land this \$17-million chemical enterprise, it will have reeled in its first catch, be ready to rebait its hook.



. . . looks the plant site over with representatives (left) of Foster Wheeler, who'll handle construction.

* In June, Timpson voters will pass on a \$500,000 bond issue to finance an adequate, year-round water supply.



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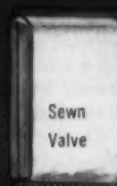
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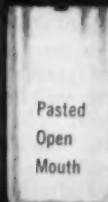
Sewn
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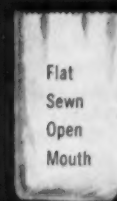
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TWO POINTS OF VIEW: Discussing industry-educational cooperation are Lehigh's Harvey Neville (left), AIC's Lincoln Work, and Colgate's Thomas Vaughn.

A Long Step Forward

Tackling the problem of industry-educational cooperation from a rational point of view has been the long-standing hope of chemical men and college professors alike. Almost everyone admits there's vast room for improvement, and there's rarely been a concentrated effort to understand all sides of the question. That's what American Institute of Chemists' speakers did at Asbury Park last week, however. And though the results aren't calculable, belief's strong in the minds of observers that AIC's approach to the problem ("putting the finger on people instead of technology") may well be emulated in future discussions.

Keynoting the basic problem that besets understanding the situation was Rutgers University's president, Lewis Jones. His contention: much aid in the form of grants has been offered to universities by chemical companies, but much of it's been misdirected. The common grant is restricted to a specific field of developmental research, isn't offered for general study.

When presented with the outcome (the graduate student) however, industry isn't satisfied. The classic complaint: "We need a degree of flexibility in a man—can't be content with technical competence alone."

Nor is the graduate pleased with himself. He's driven by a passion for security and often feels that what he's gained at college isn't what's required for business success.

Educators are equally perturbed. Their stock in trade—preparing chemists to carry on chemical development, research—is being attacked.

That something must be done to ameliorate the situation is obvious. But how it's to be handled, how it can be managed to best satisfy industry, educators, and students alike is open for discussion.

Hubert Alyea (Chemistry Dept., Princeton) suggests much can be done by industry to partly resolve educators' problems at a high-school level. Maintaining that the level of chemistry students now entering college isn't high "because of a lack of company interest in high-school science teachers" he advocates active industry participation in local Boards of Education. Increased teacher extension programs (subsidized by chemical companies) would help; research foundations ("to allow the high-school teacher one full day a week to think") would be of inestimable value.

Merck's Per Frolich has other suggestions as to how industry can aid. Most important: the duty of generating enthusiasm among teachers . . . "make them feel needed." Scholarships ("unrestricted") are needed; summer employment ("at a more widespread level"); teaching aids (prepared by industry representatives), lectures by industry spokesmen haven't been given a full trial.

"Interchange of personnel," notes

Frolich, "can go a long way to promote understanding." Encumbered as they are with heavier enrollments and financing problems, educational institutions find it hard to appreciate why industry sets up specific rules and regulations for its benefices. And industry, equally caught up in production problems, finds it hard to spend much time or effort in rooting out better ways to help.

But if representatives from both industry and educational institutions get ample opportunity (and encouragement) to spend time in the other's bailiwick, if each gets a chance to cope with the other's problems, solid gains can be made in mutual understanding.

Colgate's Thomas Vaughn suggests in-service study as one means of orienting chemists not fully prepared for industry. "Study never ends for the professional chemist," says Vaughn. If more companies would make it a standard practice to sponsor individual and group study to round out graduates, there would be fewer complaints about what they're lacking. It's part of a company's responsibility to assume part of the educational load. Monetary grants to colleges can't be overlooked, technical literature and professional societies can be counted on to disseminate knowledge, but if industry wants promising chemists, it has to help continue their education after graduation.

From any angle, it's a new train in educational-industry thinking.

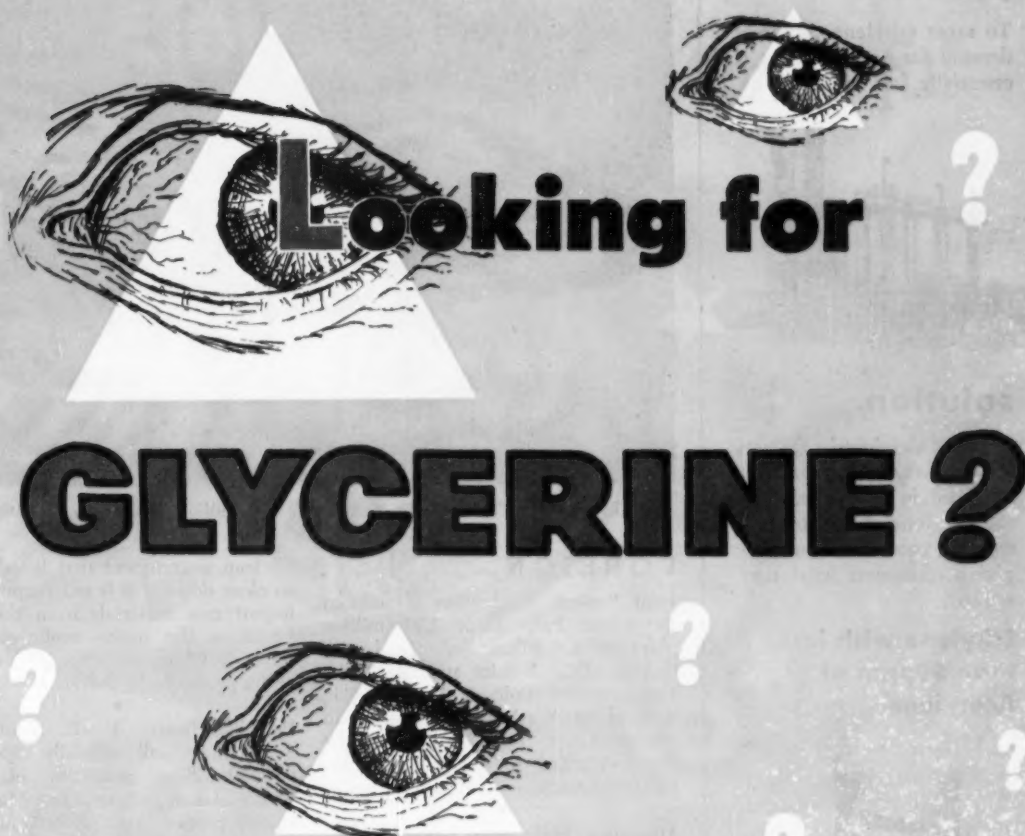
Relaxing Restrictions?

Chemical producers covered by Office of Defense Mobilization expansion goals, soon may be able to get accelerated tax write-offs on costs incurred to modernize existing facilities—even if the new installations don't actually boost capacity.

That's the plan, currently under consideration by ODM, as a step in its tax incentive policy of "maintaining the mobilization base."

Chemical makers (and other producers eligible for tax write-offs) would, ODM feels, be encouraged to replace old equipment in order to reduce production costs under the new program. Up until now, since write-offs are granted only when the result meant added output, producers have been prone to sink expansion money in replacement only when absolutely necessary.

Adoption of the plan awaits approval by the inter-agency Defense Mobilization Board.



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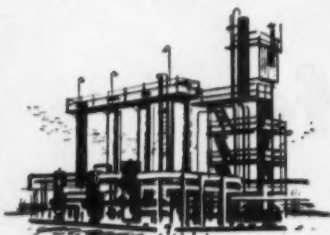
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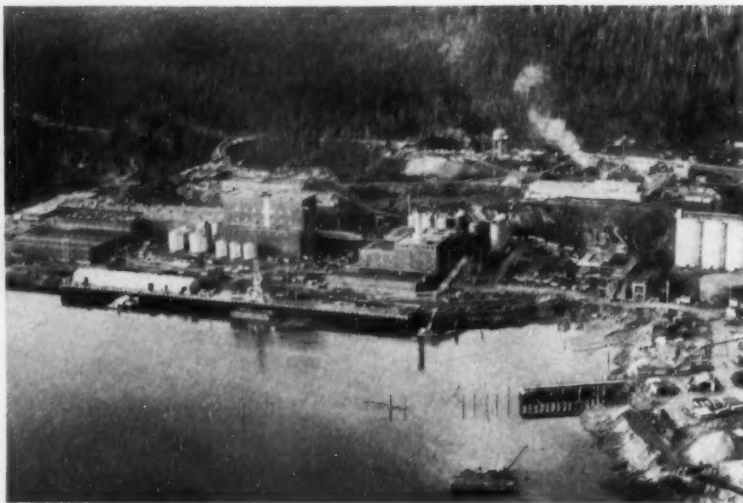
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BUSINESS & INDUSTRY



ALASKAN ENTERPRISE: Ketchikan's \$50 million plant, now operating.

FOREIGN

Joint Project: Production of pulp at Ketchikan Pulp Co.'s \$50 million plant at Ketchikan (above) begins this month. A joint project of the Puget Sound Pulp & Timber Co., Bellingham, Wash. and the American Viscose Corp., Philadelphia, it's the Territory's first pulp mill. Capacity: 130,000 tons/year of dissolving pulp.

Aluminum/Philippines: Reynolds Metals Co., Richmond, Va. will go ahead with its plans to build a \$3 million aluminum sheet and foil plant in the Philippines. The project had been held up, pending clarification of signs indicating that the Philippine Congress was backing down on earlier promises of favored treatment to new investors.

Cellulose/Mexico: A new \$17 million cellulose plant will be built at Ciudad Anahuac, in the northern Mexican state of Chihuahua. Backing the project: Mexican textile producers, and the Snia Viscosa Co., Milan, Italy, which is supplying 25% of the investment in the form of machinery and technical assistance. Production is expected sometime in 1955.

Potash/West Germany: West German sales of potash rose to 476,500 tons in the first quarter of 1954, according to Burbach Kallwerke AG, Wolfenbuettel. Foreign demand has accounted for a large percentage of the rise.

Explosives/Chile: The Compania Sud Americana de Explosivos S.A. (controlled by Du Pont) has advised the

Chilean government that it will have to close down if it is not permitted to import raw materials from the U.S. CSAE is the major explosives producer in Chile, exports a major share of its products to Bolivia.

Penicillin/Brazil: E. R. Squibb & Sons, S.A. will officially open its Cr\$250-million penicillin plant in Santo Amaro, Brazil on May 31. Initial production: 1.8 trillion units of penicillin per month, about half of Brazil's requirements (and about 2½ times, per capita, U.S. consumption). Booked as one of the world's largest penicillin plants, outside the U.S., it will use Brazilian raw materials almost exclusively.

Phosphates/North Africa: French North Africa's phosphate production this year is tapering off compared with 1953 output, but export figures are creeping up again. Latest monthly breakdown: in February, exports to France totalled 102,517 tons, to other countries, 507,518 tons; while in February 1953, exports to France came to 82,203 tons, to other countries, 442,505 tons.

LEGAL

High Court Plea: Facing the possibility of having to fight out the cellophane case all over again, Du Pont attorneys are asking the U. S. Supreme Court either to deny the government's appeal from the district court's dismissal of the antitrust charges, or else to order the government to make more specific its contentions of errors in the lower court's findings.

Such an order is necessary, Du Pont

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BUSINESS & INDUSTRY

counsel Gerhard Gesell told the high court, "to disclose to (Du Pont) the issues it must meet on appeal."

Another law suit involving Du Pont in federal court litigation has just been decided at Charleston, S. C. U. S. District Judge George Bell Timmerman has ordered Du Pont to pay \$854,614 to Lyles & Lang Construction Co. of Columbia, S. C. That firm had a contract to build and operate dormitory housing facilities for 7,500 men adjacent to the Savannah River atomic energy plant, operated by Du Pont for the Atomic Energy Commission.

Antitrust Revision: Having been the target of no fewer than 20 antitrust actions filed during the 10-year period starting in 1939, Du Pont is understandably interested in the work of the Attorney General's National Committee to Study the Antitrust Laws, now in session in Washington. Du Pont hopes the committee will do something about three "seeming inconsistencies" in present laws and interpretations:

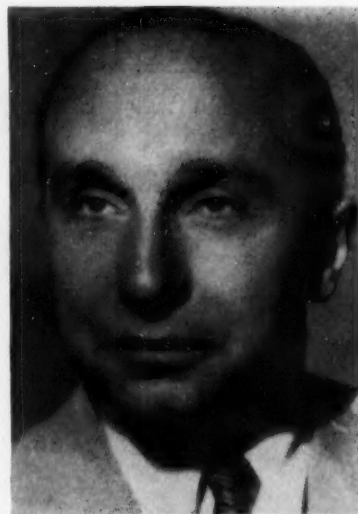
- Object of the laws is to promote competition, but if a firm competes so successfully as to gain a large share of the market, it might be prosecuted for monopoly.

- While the Sherman Act seeks to encourage competition by prohibiting price fixing, the Robinson-Patman Act tends to promote rigid pricing.

- The Justice Dept. has been considering competition as existing only among makers of a single product, such as cellophane; but there's also competition from makers of other products that may serve for the same end use.

One of the suggestions received by Attorney General Brownell's committee came from the National Assn. of Manufacturers, which proposes that a "rule of reason" be applicable to all antitrust proceedings, so that no given business practice would be adjudged a violation unless it actually resulted in injury to the public or the rest of the industry.

Hopes for Trial: The head of Interhandel is hopeful that the U. S. Court of Appeals in Washington will grant his company's plea in time for actual trial of the case to begin by October. Walter Germann, managing director of the Swiss holding company that claims the government-held stock of General Aniline & Film Corp., says that adjudication of the issues would establish Interhandel's right to recover that stock. He insists that Interhandel "cannot possibly" be under



INTERHANDEL'S GERMANN: Owned by Germans, only 5% of voting stock.

German control, because only 13,000 shares of the firm's voting stock—about 5% of the total—are held free of Interhandel control in Germany.

Fluoridation Lawsuits: Constitutionality of fluoridating public water supply systems is being argued in lower courts now, can be expected to advance on appeal to higher courts by next year. Among latest moves:

- In Minneapolis, City Attorney John Bonner ventures the opinion that the city council is empowered to fluoridate, but cautions that if it could be proved that fluoridation were unsafe and that there were negligence on the part of the city, then the city could be held liable for damages.

- Three residents of New Castle, Pa., have filed an equity suit to restrain the City of New Castle Water Co. from adding sodium silicofluoride to the city water supply. This is said to be the first case of its kind in Pennsylvania.

LABOR

Power Struggle: Who's running the International Chemical Workers Union (AFL) these days—the president or the executive board? It's a moot question, because those two parties—instead of working in close harmony, as the ICWU constitution envisages—are working at cross purposes on various union matters this week.

The line of cleavage is particularly marked in the case of ICWU Local 521 at Charlestown, Ind. President

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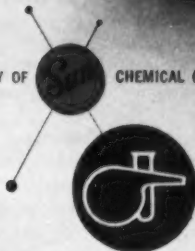
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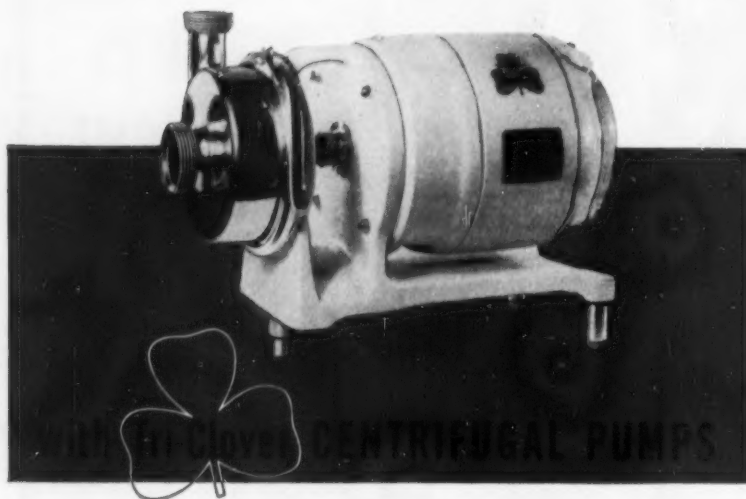
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B & I



ICWU'S BRADLEY: When dissension rears its head, he plays rough.

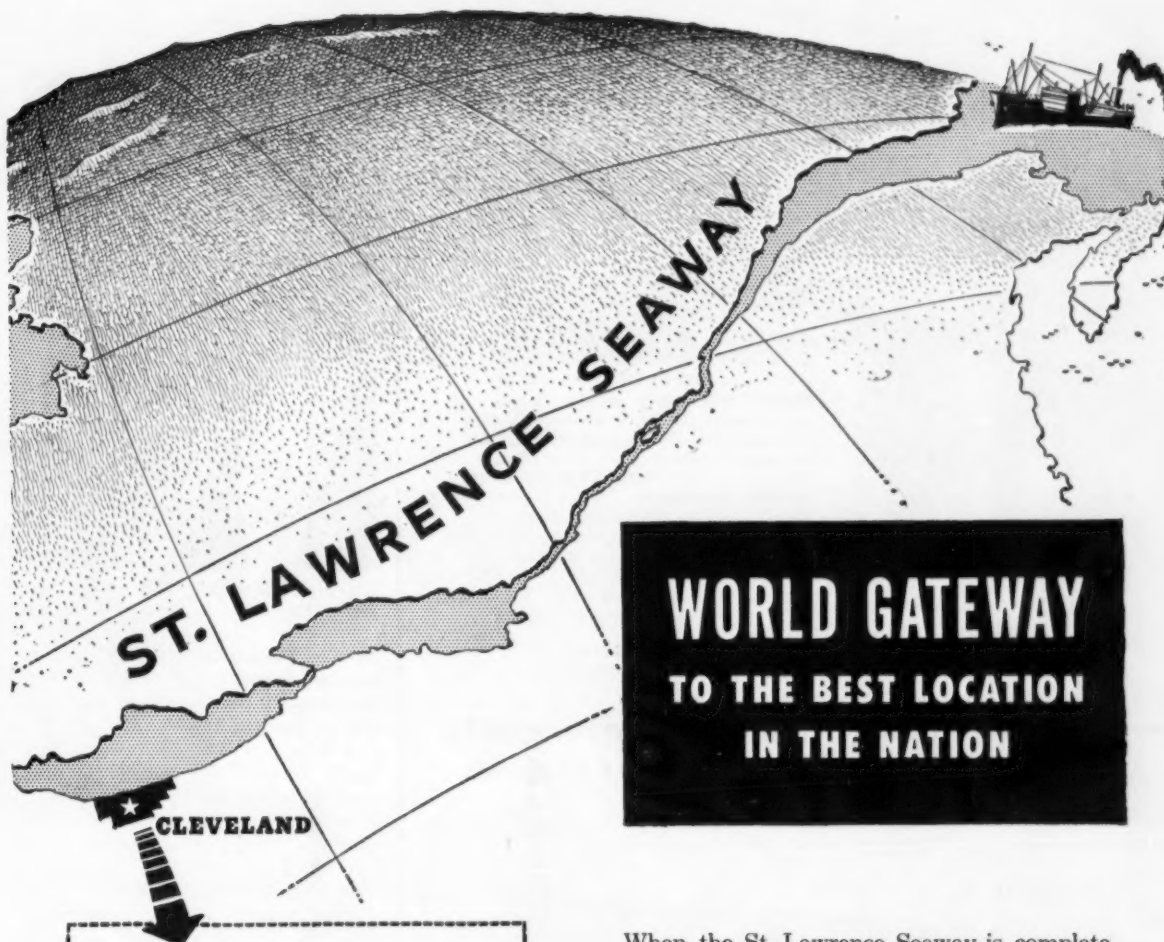
H. A. Bradley has taken over that local because its officers allegedly mismanaged the local's finances, and the executive board is conducting an investigation to determine whether Bradley's move was justified. The day after the executive board opened its probe, Bradley—through an attorney—filed suit to establish his control over the local's \$23,788 bank account.

Sidney Garfield of Chicago, ICWU's vice-president for that region, accuses Bradley of taking charge of the local so as to be able to appoint pro-Bradley delegates to the union's annual convention in August. By that time, the union's rank-and-file members probably will have made up their mind on how to resolve the feud.

Unionists in Court: Other labor unions also are having their troubles this week.

• At Knoxville, Tenn., Local 281 of United Gas, Coke & Chemical Workers (CIO) has been ordered to pay for losses allegedly incurred by Patent Button Co. during a 37-day strike in 1951. The company asked \$42,217, but the court directed that a report be prepared itemizing the damages, and that each side would be allowed to file exceptions before a final figure is set.

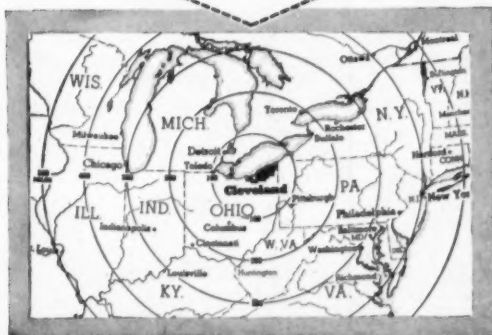
• Sixteen employees of Kingsford Chemical Co., Iron Mountain, Mich., have been fined a total of \$2,130 for violating a "peaceful picketing" injunction issued during last year's 113-day strike (CW, Nov. 7, '53, p. 30). Circuit Judge Herman Dehnke ruled that the 16 men, all members of United Auto Workers (CIO), had



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B & I



CIO'S REUTHER: With living costs higher, he wants benefits to catch up.

violated the injunction by overturning an auto, throwing nails on a road, and stopping rail transportation on a spur line at the plant.

• Effect of South Carolina's new "right to work" law was seen in arrests made last week at a struck garment plant near Hartsville, S.C. A man and two women were arrested by Sheriff John Stokes on a charge that they tried to prevent a non-striker from entering the plant of the Hartsville Mfg. Co. The company said law officers have been providing "complete protection to all workers."

• **White House Appeal:** CIO President Walter Reuther is asking President Eisenhower to take the lead in seeking legislation that would bring unemployment benefits "into line with the economic realities of today." Recalling that in January the President had recommended higher jobless payments under state programs, Reuther said that unemployment pay rates have dropped from 43% of average weekly wages in 1929 to a low of 33% this year.

• **"No" to Unions:** An episode in chemical unionizing ended this month when the first contract between National Petro-Chemicals and Petro Independent Union went into effect, with a pay schedule whose minimum rate is 10¢/hour higher than the average wage for all members of AFL and CIO unions, according to a company spokesman.

National Petro-Chemical employees at Tuscola, Ill., formed their independent union last summer. In an election conducted by National Labor

For production on an even level

Uniform production depends largely upon uniform ingredients. The uniformity of Nialk chemicals is recognized throughout the chemical-using industries.

a typical example...

NIALK CARBONATE OF POTASH: Good production schedules are maintained in the pharmaceutical and vitamin fields only when the uniform purity of vital ingredients is assured. Many leading drug houses specify NIALK Carbonate of Potash, knowing that its uniform high quality contributes to smooth production.

This uniformity in all NIALK chemicals is an important factor in keeping production on an even level in many fields.

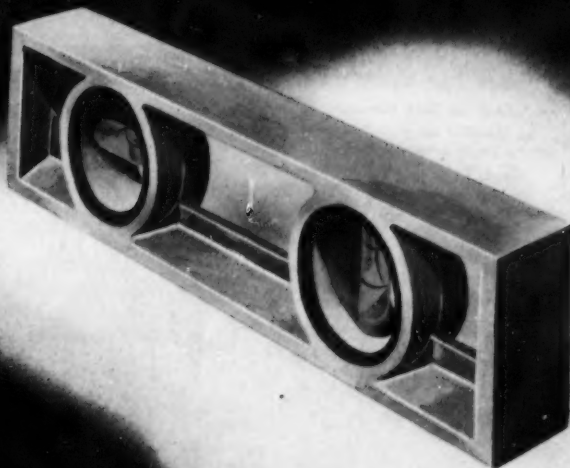
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B & I

Relations Board in October, there were 100 ballots for the independent union, 98 for the Tuscola AFL Council, 13 for CIO and two for no union. The independent union won the run-off election, 126 to 87, but the AFL protested. This prevented negotiating a contract until after March 16, when NLRB dismissed the charges.

Another employee group saying "no" to the national unions: workers at the Atomic Energy plant near Dana, Ohio, cast 167 votes for CIO, 72 for AFL, and 323 for no union. The plant is operated for the Atomic Energy Commission by Du Pont.

Largest chemical plant force to become unionized this month: employees at North American Cyanamid's plant at Ingersoll, Ontario. This makes 14 plants of American Cyanamid and its subsidiaries at which International Chemical Workers Union (AFL) has local unions.

KEY CHANGES. . .

Hans Stauffer, to president, and **Christian de Guigne**, to chairman of the board, Stauffer Chemical Co., San Francisco.

Harry M. Brubaker, to vice-president, Rubber Chemicals Div., Witco Chemical Co., New York.

Eugene B. Hotchkiss, to vice-president, Vitro Corporation of America, New York.

B. B. Countryman, to vice-president, Purchasing Div., and **I. R. Hansen**, to assistant treasurer, Minnesota Mining & Manufacturing Co., St. Paul.

M. J. Hoover, to sales director, Sun Chemical Corp., Long Island City, N. Y.

William N. Porter, to board of directors, Horizons Titanium Corp., New York.

Charles A. Rittenhouse, III, to general counsel and director of the legal department, Du Pont Co., Wilmington.

Prentiss M. Brown, to board of directors, Parke, Davis & Co., Detroit.

Jack L. Stuart, to vice-president and member of the board of directors, Sola Catalytic Co., Dallas.

O. V. Luke, to director of research, Plastics Div., Celanese Corp. of America, Summit, N. J.

C. LeRoy Carpenter, to vice-president and technical director, Summers Fertilizer Co. and its affiliate, Northern Chemical Industries, Inc., Baltimore.



With the recent opening of the valve of the newly completed \$20 million facilities at Sterlington, Louisiana, Commercial Solvents Corporation becomes one of the world's largest producers of methanol, for sale to meet the growing needs of expanding American Industry.

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1 LAB is starting point for novel reporting system. Here, chemist Edward Weil checks catalysis work . . .



2 PRIOR to discussing it with supervisor Aylmer Maude. Such off-the-cuff sessions formalize thinking.

Communications: Person-to-Person

You don't have to sell communications to chemical research directors. They're all for it, and they all subscribe to the same general methods of achieving it in their organizations. Nevertheless, a completely free interchange of ideas is virtually infeasible in most substantial research divisions.

That's why Hooker Electrochemical Co.'s novel intelligence system stands

out among communications methods employed by chemical firms. Hooker doesn't claim to possess totally unrestricted information exchange. But, by injecting the personal touch, the company has removed many barriers that ordinarily confine communications in research.

In essence, the idea is to place less reliance on reports and the written

word, allow the research man more opportunity to speak for himself. At Hooker's Niagara Falls (N.Y.) laboratories, that applies to the researcher's relations with management as well as to his dealings with departmental colleagues.

Newest product of this oral approach to intracompany communication is a series of meetings pitched



3 AT MONTHLY MEETING of chlorination group, Weil recounts methods and findings to fellow researchers, director Bruun (left), research and development managers, and pilot-plant engineers who will take on project.

for the research group. Once a month, each of the eight research groups sits down with research management to talk over the project under study, thresh out problems, chart the future course, and take action to coordinate the work with the activities of other groups.

Held at 8:45 a.m. in the office of director of research and development Jack Bruun, these meetings are conducted by the group leader, attended by the director of research and development, manager of research Jim Sconce, manager of development Joy Beanblossom and anyone else (other researchers, group leaders, manufacturing, pilot-plant personnel) who may be concerned with the group's work. Total attendance varies from as few as six to as many as 20 persons.

During the course of the 1 to 1½-hour session, each regular member of the group is given the chance to relate his activities of the previous month.

Meetings of this type, Hooker believes, are worthwhile on four broad counts:

- They help research management maintain close contact with the technical staff, keep key men informed of progress of various groups.
- Morale gets a lift; individual staffers are assured that their work comes to the attention of the research director and high-ranking department executives.
- Coordination between groups is promoted—i.e., meeting invitations are

often extended to pilot-plant engineers who are likely to take over the research problem under discussion.

• Research people get the big picture of their department's operations, are easily informed of what work others are doing.

From a personal standpoint, the monthly session proves to the man at the bench that: the company is interested in him and his work; no one will be able to pin another's name on his work, take the credit for a good job.

Other occasions for researchers to get on their feet and declaim are the company's annual review of research and development activities and the annual meeting between research and top management. At the former, the director of research and development, assisted by supervisors, chemists and engineers detail the department's activities of the previous year, answer management's questions. In the course of the latter, each technical staffer is introduced to top management, orally capsules some problem he labored on.

Between these annual gatherings, company executives are kept posted by a monthly research and development report, which, of course, is limited to the information that can be transmitted by the printed page.

All in all, Hooker's word-of-mouth method appears to be doing a commendable job. Bruun especially likes it for the way it makes the researcher organize his thoughts.

"Talking about his work helps the



4 PILOT-PLANTERS now have head start, use Weil as consultant.



5 ANNUAL FULL DRESS MEETING of management and research-development dept. is occasion for Weil's final report on process. First row (from rear): chairman Bartlett; V-P's Wilkin and Babcock; Exec. V-P Klaussen; President Murray.

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RESEARCH

chemist coordinate his ideas in his head," Bruun contends, "forces him to produce a plan of action. And he's much more likely to appraise his work from a commercial standpoint now that he has to lay it out on the table for us to appraise." Will it sell? is a query that has taken on new importance for his researchers, declares Bruun.

Other favorable comments on the system: it helps new men get "their feet on the ground," eases the ticklish job of cutting off a project when it no longer appears feasible to continue.

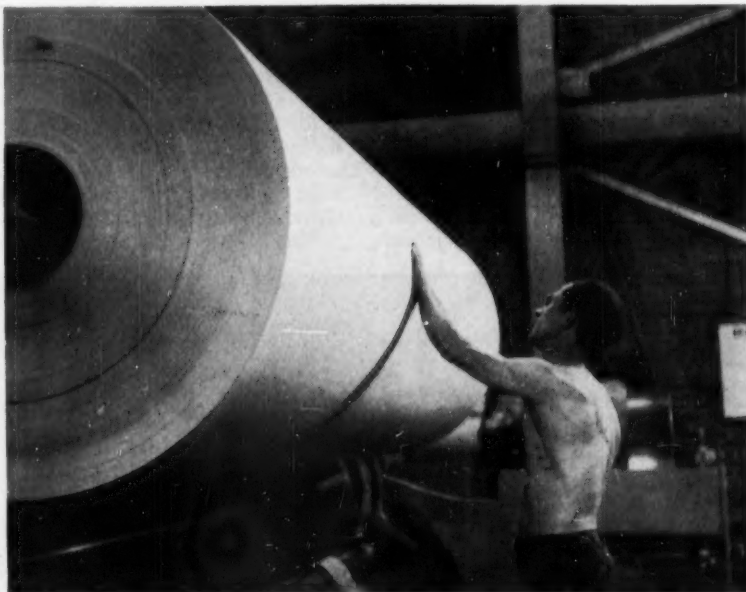
"It's hard to tell a man to stop work on something he's all wrapped up in," admits Bruun. "You can't just go into his lab and say, 'Stop that'; you must reason it out with the man, so that he'll take it in the right spirit." The meeting simplifies this. "Very often," Bruun reports, "after a chemist talks out a poor project at a meeting, he will ask for a reappraisal, might even request that the work be terminated and he be reassigned."

Despite these strong appeals, the

personal approach is not the complete fulfillment of a research director's dream. It doesn't entirely do away with monthly written reports.

Perhaps more serious is the time factor. In addition to his group meetings (two or three a week) research director Bruun regularly gets together with his immediate lieutenants, all research and development supervisors, and the sales development group. The feasibility of personal group sessions, obviously, varies inversely with the size of the research organization.

Hooker's is by no means small, employs 138 (61 technical people, 77 nontechnical). "Sure, it takes a lot of time," volunteers Bruun, "but so would walking through the laboratories, spending a few minutes with everyone of our people. It comes down to the question," exclaims Bruun, gesturing in the direction of managers Sconce and Beanblossom, "of where our time is best spent. Is it in writing reports, or guiding the work of our researchers?"



WRAPPING-PAPER ROLL: Next target for the gallates?

Building New Gallate Potential

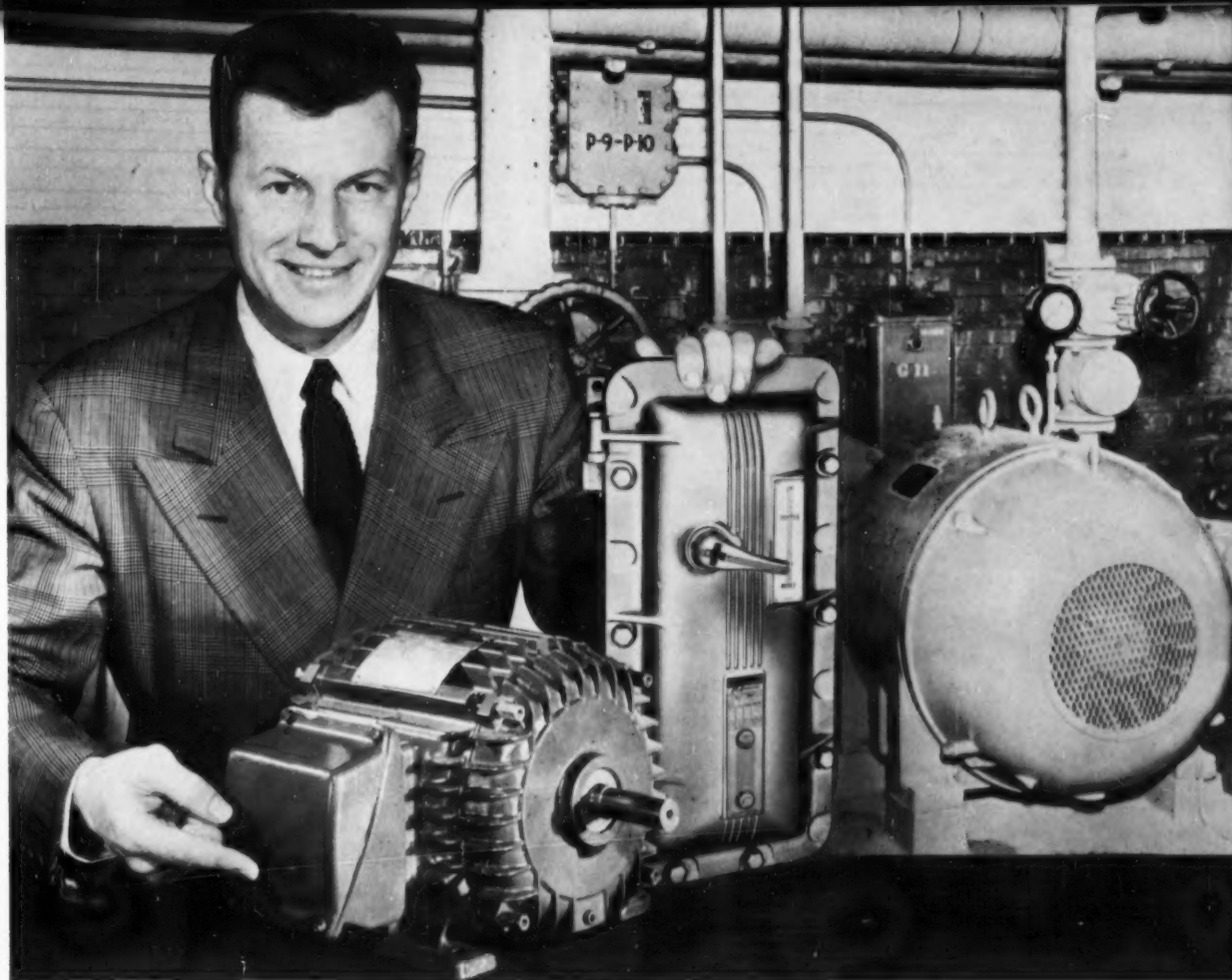
Two new products—Shell Chemical's butylhydroxytoluene* and Enjay's trialkylphenolt—bear witness to the

* Trade-named Ionol, the compound is 2,6-di-tert-butyl-4-methylphenol. It has been accepted by FDA and is now in the process of being approved.

† Labeled Deenax for the food industry. The product is known as Paranox in the petroleum industry. It is still a candidate for FDA approval.

vigorous search for improved food-stuff antioxidants. There are no equally tangible indications of the swirl of research activity surrounding the workhorse gallate antioxidants; but gallate research, both here and abroad, is very much alive.

One significant phase of the effort



What you can do to attain round-the-clock production continuity

HERE ARE 4 WAYS WESTINGHOUSE POWER PARTNERS CAN HELP

Motion is basic to all chemical processing. Materials must be moved, mashed, blown, crushed and moved again. Keeping that motion uninterrupted is a mountainous task, but one that can be simplified by using time-proved Life-Line® motors, gearmotors and controls. Here's how:

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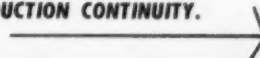
LESS MAINTENANCE—Less production time is lost maintaining Life-Line motors—they require no on-the-job greasing. Less production time is lost maintaining Life-Line controls.

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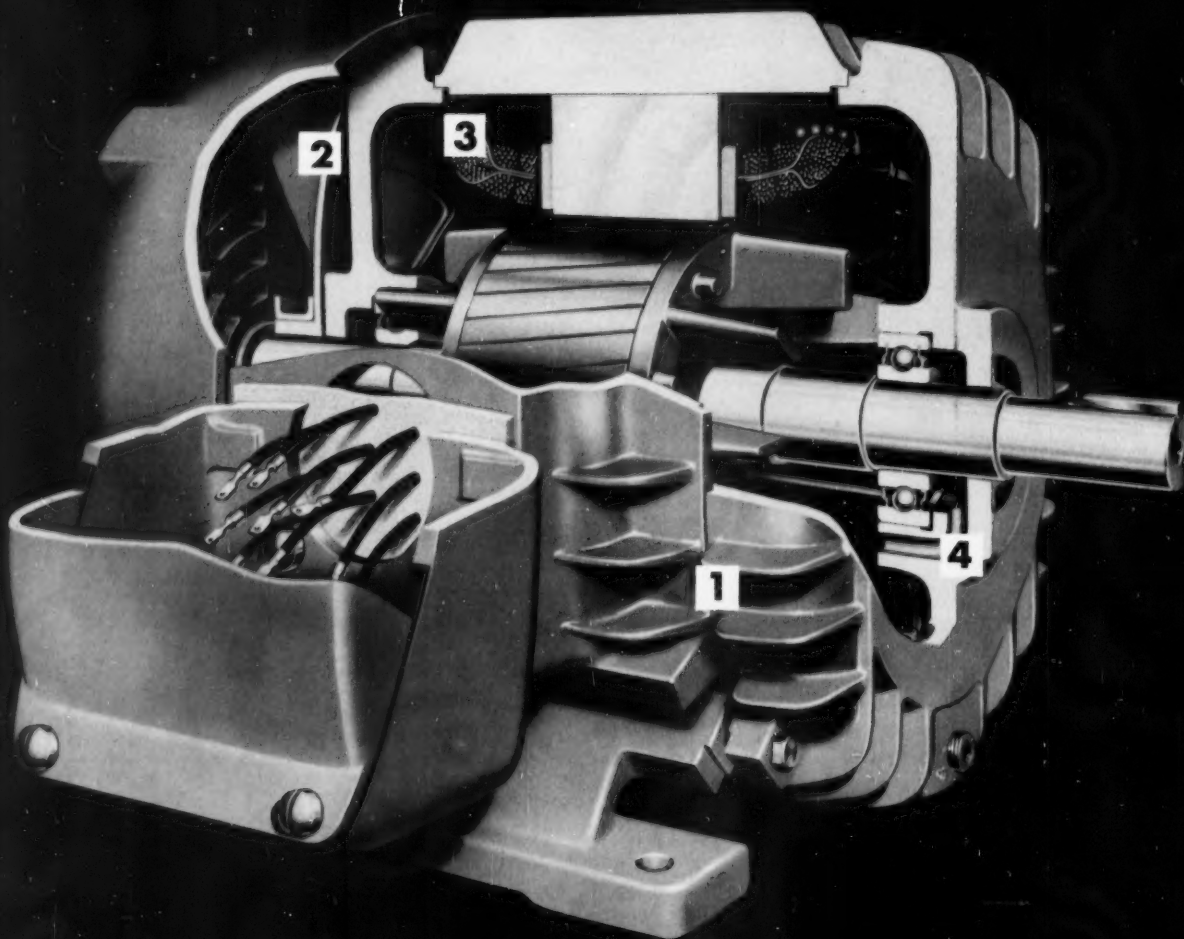
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THE NEXT THREE PAGES DISCUSS OTHER REASONS WHY LIFE-LINE MOTORS
AND CONTROLS CAN HELP YOUR PRODUCTION CONTINUITY.



MINIMIZE CORROSION...



1. CORROSION-PROOF CAST IRON FRAME AND BRACKETS

The housing is the one element that is responsible for protection of the internal parts of the motor. The Life-Line housing provides three-way protection: (1) only fine-grained castings are used; (2) all wall sections are uniformly thick; and (3) all fits are accurate and sealed.

2. CORROSION-PROOF FAN

The external cooling fan is a critical member of a totally-enclosed, fan-cooled motor. By producing a sucking action, it draws large quantities of surrounding foreign material to it. This design dictates the use of thin-walled blades that are easy prey to corrosion. Life-Line solved the problem by making the fan of a rugged, chemically inert material—molded glass plastic.

3. FORTIFIED INSULATION SYSTEMS

Contaminating vapors can penetrate any totally-enclosed motor and attack the electrical components if they are not properly protected. Life-Line's insulation system makes sure this cannot happen. Only with Life-Line do you get the protection of Bondar conductor insulation combined with Bondite silicone-reinforced stator insulation—a protective combination unsurpassed by any other motor.

4. AIR BYPASS

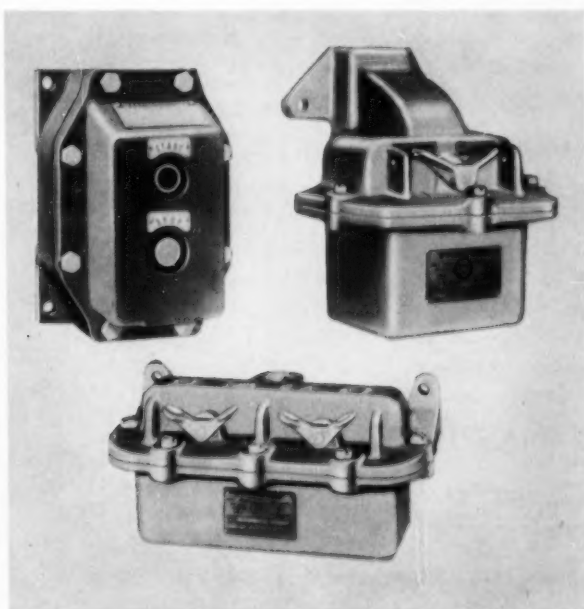
Every totally-enclosed motor "breathes" as the internal air expands and contracts with change in temperature. Ordinary motors "breathe" along the shaft and through the bearings. Contaminated air enters the bearings and becomes a source of bearing failure. Life-Line eliminates this trouble source by providing an air bypass around the bearings.

with Life-Line motors, gearmotors and controls

Corrosive solids, liquids, atmospheres, mild chemicals and severe chemicals—all must be reckoned with when applying motors, gearmotors and controls. Westinghouse equipment has been designed to give you maximum protection against the ravages of corrosion.

Life-Line motors, gearmotors and controls are also protected against physical abuse—bumps from

passing vehicles—jars from falling objects—shocks from heavy machinery operation. Life-Line "A" motors combine the strength of fine-grained cast iron with the reinforcing of heavy ribs. False operation of contacts under vibration or accidental impact is no problem with the Westinghouse Life-Line Starter . . . the inverted knife-edge bearing is spring loaded and does not depend on gravity for operation.



All types of Westinghouse Controls are available in enclosures especially suited for use in the chemical industry. Line-starters® and combination Linestarters are available in heavy plate or cast-iron enclosures. Oil-immersed starters are available for corrosive and explosive atmosphere applications.

A large variety of Westinghouse Pushbuttons and pilot controls are available with cast-iron enclosures for use in severe operating conditions. Many chemical companies have found it desirable to locate their starters outside the corrosive areas and operate them remotely by these push-buttons.

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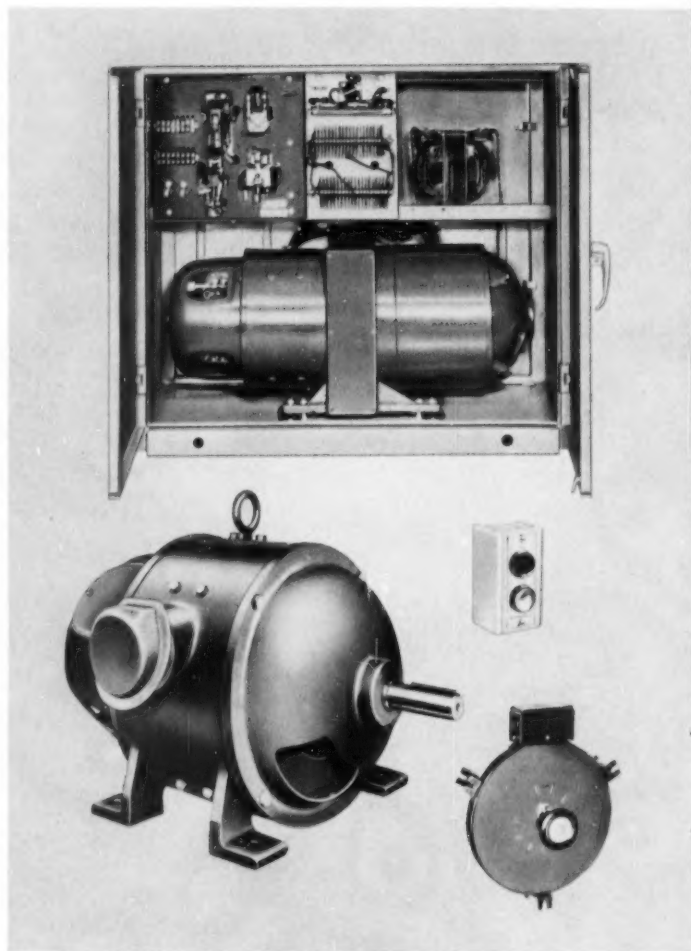
The Westinghouse Life-Line AV Drive is a complete, adjustable-voltage drive system—a factory-engineered package. Flexible in application, this packaged drive serves the chemical industry wherever exacting speed control from an a-c power line is required. The Life-Line AV Drive provides: adjustable speed—precise speed regulation—smooth acceleration and deceleration.

Got a tough drive problem that is giving you trouble? Call on the services of a Westinghouse Consulting and Application Engineer. His specialized knowledge qualifies him to analyze fully your specific drive requirements and to recommend the proper equipment.

Here's the backup maintenance and repair service you get when you specify Westinghouse

Westinghouse Maintenance Service is a national organization established to meet all your needs for the repair or overhaul of electrical apparatus. **31 Warehouses**, located in prime industrial centers across the country, carry a well-rounded supply of Westinghouse Genuine Renewal Parts. **38 Specially Equipped Apparatus Repair Shops** are set up to repair every conceivable type of electrical apparatus. **46 Field Service Offices** are ready to make inspections, and on-the-spot repairs for equipment that cannot be moved easily. Ask your Westinghouse Representative how you can take advantage of these facilities.

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RESEARCH

is aimed at extending the use of gallic acid esters to pharmaceutical preparations, vitamin A products, cosmetics, essential oils, animal feeds, paper board and wrapping papers.

But there is also a drive to broaden the spectrum of useful gallate esters. Right now ethyl and propyl gallates hog the field. Propyl gallate is officially approved for use with edible fats and oils in the U.S., Belgium, Canada, Holland, Norway and Sweden. Ethyl gallate has received the nod only from the latter two nations. In several other countries (e.g., Germany, Switzerland and Great Britain), approval is possible in the not-too-distant future.

Higher esters thus far have made headway only in Holland and Belgium. Chiefly as a result of work by the Dutch Central Food Research Institute (Utrecht) in cooperation with Chemische Fabriek Naarden, octyl and dodecyl gallates were recently okayed in both countries.

Principal advantage of these esters over propyl gallate is better solubility in fats and oils. In potential non-food applications (e.g., drugs and cosmetics), particularly, is this significant, though partly offset by manufacturing difficulties resulting from stringent purity requirements. Until now, however, none of the higher esters has won U.S. Food and Drug Administration approval. But, as a result of their Dutch conquest, higher esters have triggered considerable interest.

Long chain gallates have been under scrutiny for the past decade by the British Nipa Laboratories Ltd. (London), are supplied by the firm under its Progallin trademark. Nipa, incidentally, owns the key patents^{††} on gallate antioxidants, launched commercial development of the ethyl and propyl esters in 1939. The majority of the company's patents refer to "aliphatic esters" of gallic acid, cover such members as the octyl, dodecyl, cetyl and stearyl derivatives, as well as the ethyl and propyl esters.

In this country, Heyden Chemical Corp. and Goldschmidt Chemical Corp. (both of New York) are licensed under the U.S. patent (2,255,191), have in turn sublicensed Eastman Kodak Co. (Rochester, N.Y.), The Griffith Laboratories, Inc. (Chicago) and possibly one or two smaller firms. Heyden, Griffith and

^{††} Including the following 15 patents in which Nipa director Erich Boelke is cited as co-inventor: Argentine, 50,204; Australim, 146,733; Belgian, 435,981; Brazilian, 29,826; British, 542,833; Canadian, 403,714; Dutch, 51,311; French, 859,052; German, 889,819 and 1839; Hungarian, 124,996; Norwegian, 63,159; Spanish, 100,235; Swiss, 217,764; U.S. 2,255,191.

Tennessee Eastman have played major roles in gallate antioxidant research and development.

All of the current interest in new gallates doesn't add up to FDA sanction and a commercial career. In their quest for both, the long chain esters will be scrambling with such other hopefuls as dihydroquercetin, conidendrols, trialkyphenols and various mixtures of active compounds.

New Isotope: Cesium-137, a new isotope said to offer advantages over X-ray machines, radium, and cobalt-60 as a radiation source, has been separated from fission products at Oak Ridge National Laboratory (operated for AEC by Union Carbide). Slated for trials in cancer research, the radioactive element has a half life of 37 years, over seven times that of commonly used cobalt-60.

Ground Work: At a cost of more than \$4 million, Wyeth Laboratories is building a new laboratory and headquarters building near Philadelphia. Ground has been broken for the three-story structure. Scheduled for completion in July, 1955, it will have a total area of about 165,000 sq. ft. and will be air-conditioned throughout.

Fatty Alcohols: A new high for unsaturation in commercially available long-chain alcohols is claimed by Stepan Chemical Co. (Chicago, Ill.) for its two new fatty alcohol products, Mekanol 8 and 9. Proportion of unsaturated alcohols is 88% and 91%, respectively. Preliminary research points to potential uses as modifiers in alkyd resins and polyesters, and in manufacture of quaternary ammonium germicides.

Research Emphasis: Heralding its intensified research program, Crown Zellerbach Corp. has revealed plans for its new central research laboratory at Camas, Wash. Construction is slated to begin in June; the building should be ready for occupancy in April, 1955. It will provide company researchers with 24,000 sq. ft. of new working space.

Infrared Die: Both quantitative and qualitative infrared analyses of solids are reported to be eased by Perkin-Elmer Corp.'s (Norwalk, Conn.) new sample-preparing die, which is used with a laboratory press of 20,000 lbs. capacity, a small vacuum pump, and a supply of pure potassium bromide. Here's how: a small quantity of sample and potassium bromide are

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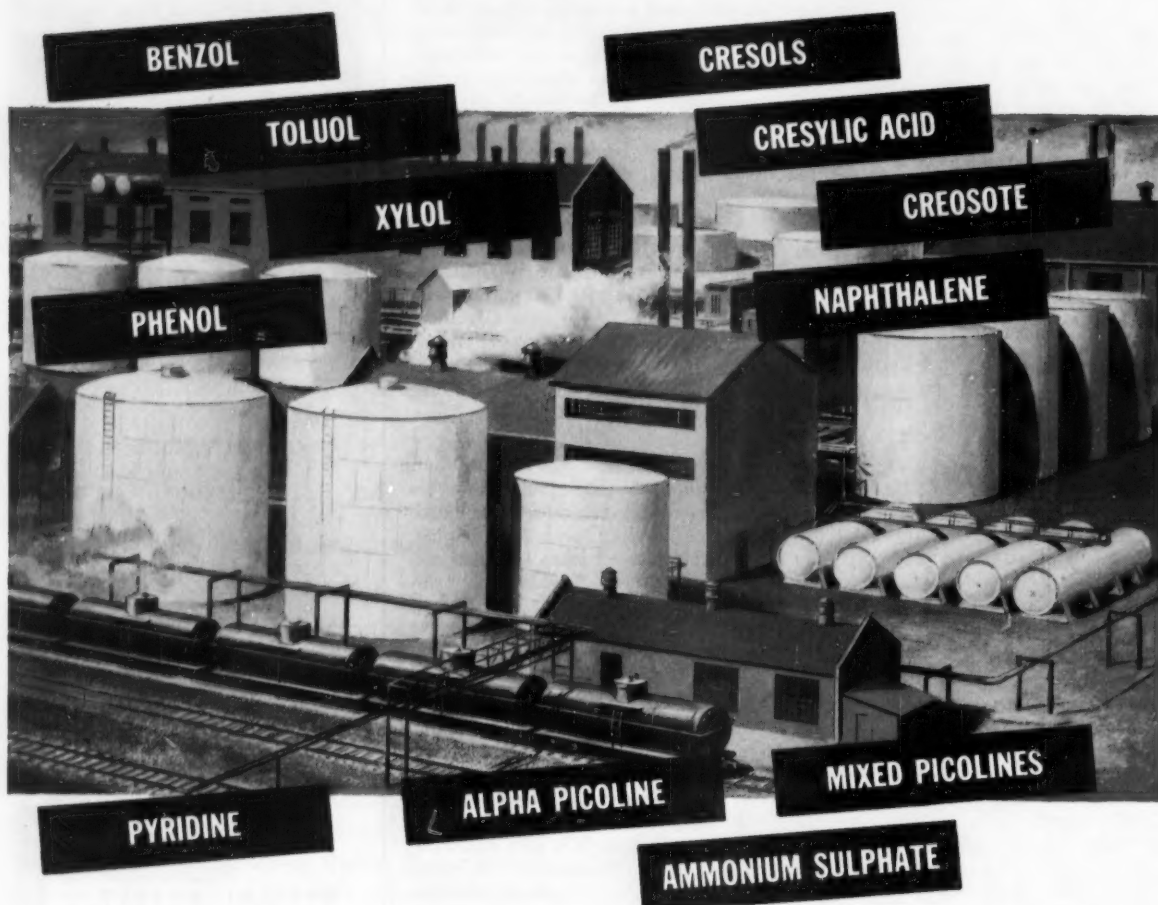
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RESEARCH

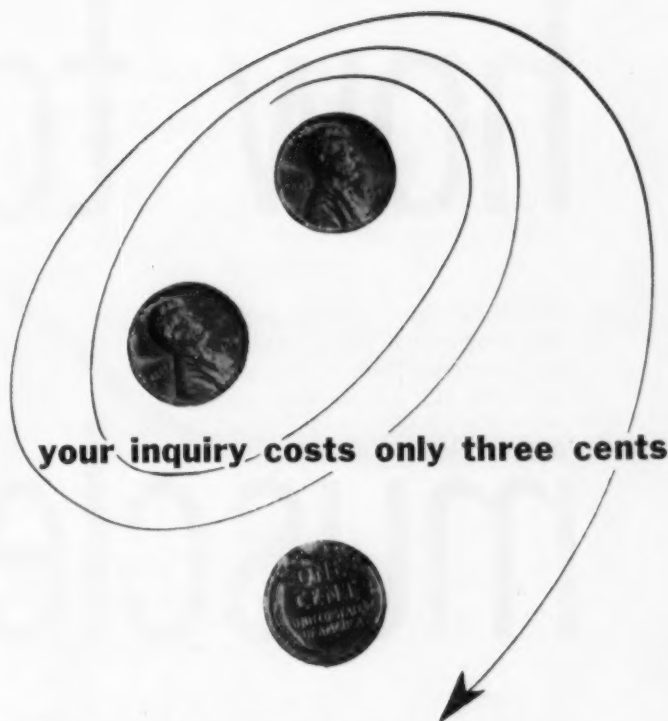
compressed in the evacuated die; resulting clear discs of the bromide-sample mixture are ready for the spectrometer. Perkin-Elmer claims the method has been used successfully in analyzing amino acids, complex organic solids, and consumer products like deodorants and lipsticks.

New Hot Lab: Biological processes and chemical reactions will be probed with radioactive tracers in a new laboratory at Monsanto's organic chemicals division (St. Louis, Mo.). Howard Nason, research director, says the new lab will concentrate on the effect of feed supplements on animal nutrition. Also on tap: determination of how insecticides and herbicides function; an investigation of chemical reactions employed in the company's manufacturing facilities.

Bug Killer: Here's the latest on Dept. of Agriculture insecticide research. At Anaheim (Calif.) USDA tested 34 phenol esters of butyric acid for their effect on the armyworm, large milkweed bug, pea aphid, and two-spotted spider mite. Most toxic compound tested was 4,6-dinitro-*o*-cresol butyrate, which showed a high kill on all test insects in concentrations down to 1%. (It proved to be a good miticide at 0.05%.) But a 1% solution has serious disadvantages, caused severe damage to growing beet, cabbage, corn, pumpkin, and tomato plants.

Linear Accelerator: More powerful, less costly than competitive devices are the claims for Application Radiation Corp.'s (Walnut Creek, Calif.) new electron linear accelerator. The new accelerator is the development of Richard Post, Hayden Gordon, David Garbellano, and Morris Jeppson (president of Arco). Expected uses: in food processing, pharmaceutical and other industries. If the instrument lives up to expectations, it could generously repay the nuclear firm's development efforts.

Now Building: Aiming for closer liaison between its technical staff and yarn-manufacturing customers, Alaska Pine and Cellulose Ltd. (Vancouver, B.C.) is constructing a research laboratory and pilot plants for investigations of acetate and viscose yarns. Expected to be ready in August, the new facilities will cost \$250,000, employ a staff of 25 under the direction of rayon research manager H. D. Partridge. Studies will be directed at the stages in the manufacture of filament yarn, staple fiber, tire cord,



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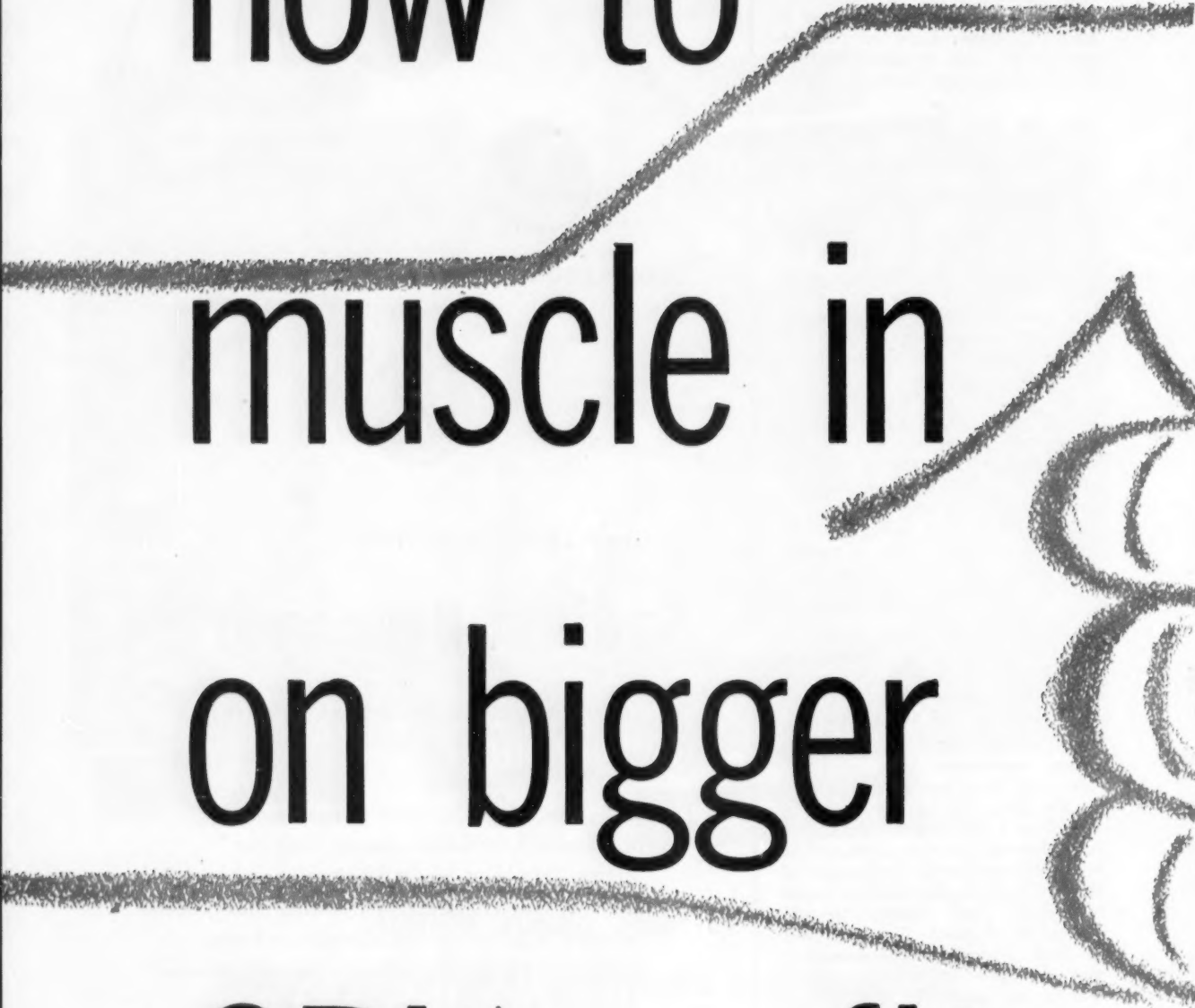
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THE SHADOW OF OBSOLESCENCE: Here's the full story of this outstanding new issue . . . its need in the market, year round utility for the chemical engineer . . . all the values that make it a smart buy for the advertiser.

THE CHALLENGE OF '54: A CPI close-up for the newcomer, an up-to-date refresher for the oldtimer. CE's report talks expansion, markets, manpower, profits . . . an overall outlook to size up your best opportunities.

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RESEARCH

transparent film, etc., from wood cellulose.

Isotope Catcher: Laboratories engaged in radioisotope studies are targets of Atomic Energy Waste Disposal Service's (Oakland, Calif.) new portable filter. Depending on ion-exchange resins, the device has been developed for use with dilute, low-activity solutions of radioisotopes. According to the company, the product's key features are: cartridge-type filter resins; built-in shielding; effluent holdup tank; and an indicator section that shows whether the effluent is acid or alkaline. In practice, radioactive fluids are decontaminated simply by being poured over the resin cartridge, passing into the effluent tank. The Oakland firm will dispose of used cartridges for its customers.

In Business: Resin Research Laboratories, Inc., has just moved into new laboratories at its Newark, (N.J.) headquarters. The company offers a variety of research services ranging from resin synthesis to molding, extrusion and casting studies.

Striving for the Simple: Simplicity of design is the chief claim for two new portable laboratory molecular stills produced by Asco Engineering Co. (Webster, N.Y.). First of a new line of high-vacuum laboratory equipment, the stills will be marketed by Bronwill Scientific, Inc. (Rochester, N.Y.).

Alternative to Branching: New light on irradiation-induced changes in polymers (CW, Apr. 3, p 69) has been shed by researcher K. Little of Britain's Atomic Energy Research Establishment (Harwell). Up to now, the effect of irradiation on polymers (e.g., polyethylene, nylon, polyethylene terephthalate) has been attributed to cross-linking accompanied by loss of hydrogen. According to Little, however, polyethylene terephthalate yields, on bombardment with radiation, neither appreciable hydrogen nor extensive bridging. And X-ray diffraction studies reveal little or no side-group formation. His conclusions: irradiation causes "straightforward breakdown of the polyethylene terephthalate chains, the breakdown products having sufficient rigidity to maintain their original positions . . ." Another observation: molecular chains break in different places depending on whether the irradiation is done in the presence or absence of air. It's no secret that industrial firms are eyeing commercial possibilities.



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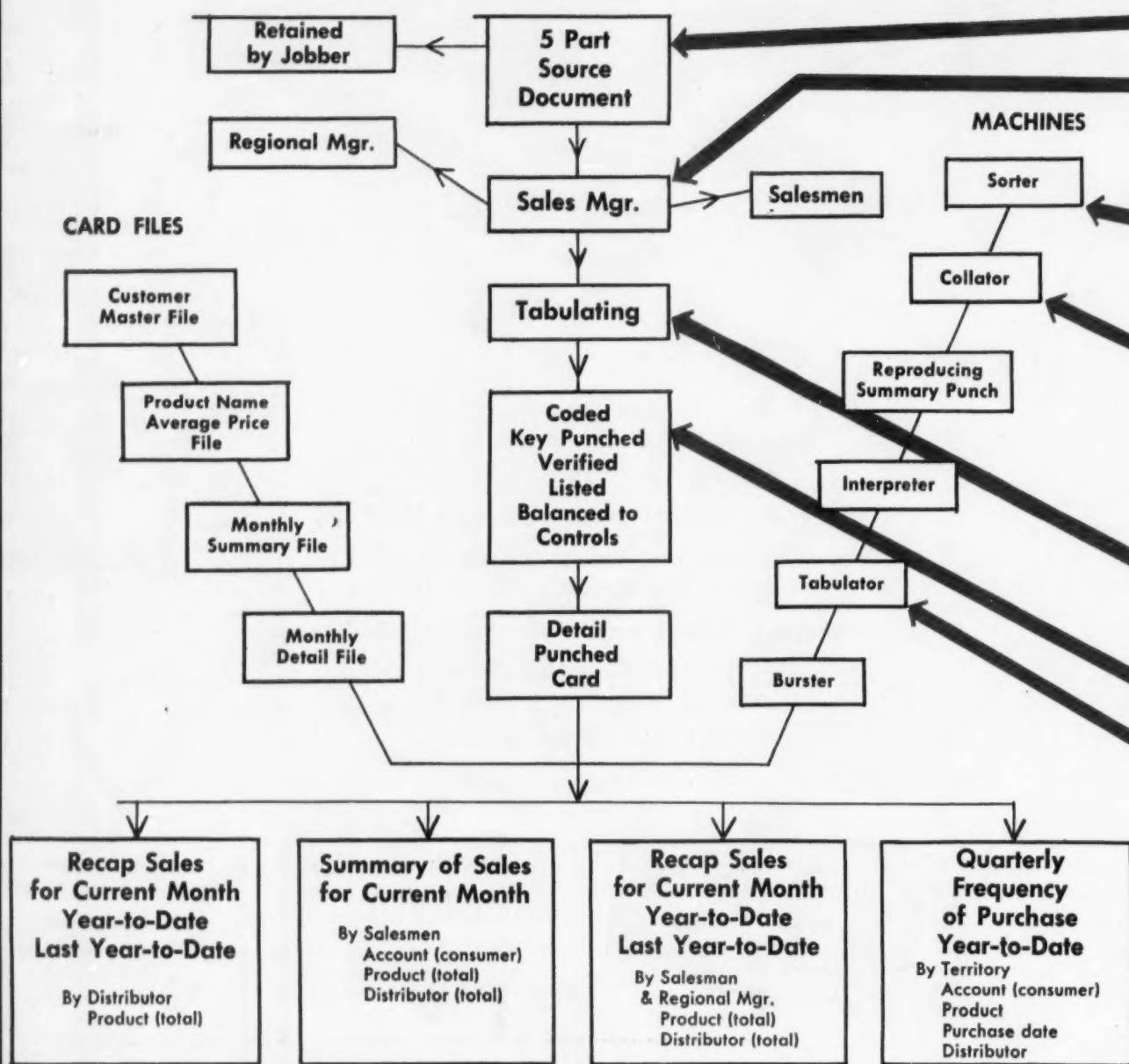
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DIGESTIVE SYSTEM: Pennsalt's battery of tabulators assimilates mountains of . . .

Mechanical Aid for Sales Brain

As a rule, most sales managers, like other executives, probably regard the compilation and studying of reports as, at best, an onerous and inescapable chore in the business of keeping informed of the progress of their activities. Not so J. Stanley Hall. As sales manager of Pennsylvania Salt's laundry and dry cleaning department, Hall's job includes:

- Keeping tab of sales by independent distributors throughout the country who handle Pennsalt laundry and dry cleaning chemicals as part of their line.
- Analyzing thousands of distributors' customers accounts to determine sales shifts and new product sales possibilities.
- Maintaining, for commission and

sales supervisory purposes, continuous and periodic records of each salesman's efforts.

These, and several other interwoven considerations, constitute Pennsalt's (and Hall's) problems of distributor sales control. But Hall, unlike most sales managers, finds that the mountain of sales figures that piles up with startling rapidity can be



... sales facts, reduces them to a complete, smooth-running system of controls.

made, with proper manipulation, to serve as a lookout post for sales planning rather than just an immovable mass of data.

The secret? Pennsalt's billing and tabulating department, headed by John L. Brown.

Reverse Twist: As Brown describes it, his department has grown in a manner just opposite of most companies. Tabulating, usually operating as a result of financial department requirements, in many organizations

grinds out sales data grudgingly.

At Pennsalt, however, sales tabulating has always been a major and primary task of Brown's department. In terms of paper work, Brown estimates that about half his total tabulating work is concerned with sales records.

This servicing of the sales department is not surprising in the light of Pennsalt history. President George Beitzel, formerly sales manager, always placed heavy emphasis on sales

analysis. Much of the original impetus for sales control can be traced to his efforts several years ago.

The system at Pennsalt was not evolved in a day, however. In fact, it's only been within the past few weeks that the last of the reports going to Hall has been whipped into final shape.

Source: Fountainhead of all laundry and dry cleaning department sales information are the distributors themselves. Each month, by the 15th,

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DISTRIBUTION

every distributor fills in a Pennsalt-provided form, furnishing details of each individual sale of laundry and/or dry cleaning chemicals made during the preceding month.

To insure complete records from which all analyses can be reliably compiled, the company built several checks and inducements into its source document collection system.

Some of these:

- Reimbursing either the distributor or his clerk (usually the latter) on a per-line basis for making the entries. According to assistant manager Don Hoffman, laundry and dry cleaning sales, this arrangement serves two purposes: (1) relieves distributor of any cost, and (2) impresses him with the importance Pennsalt places upon the operation.

- Crediting the Pennsalt salesman and computing his commission only on transactions included in the distributors' report. Obviously, any distributor not reporting sales promptly will be needled by the salesman affected.

- Cross-checking the source documents with end-of-the-month checks on the distributor's sales. This step, says Brown, prevents confidence-shaking errors from creeping into the setup.

Through the Mill: With the source documents in, Brown's staff goes to work. Theirs is the job of translating the distributors' entries into four periodic reports, three monthly, one quarterly.

For one step only, the first, is there a possibility of human copying errors. To cut mistakes of this type down to virtually nothing, Brown has the IBM cards from the source papers punched verifying in duplicate. And as a further check so that no entry is missed, the punched card totals for the month are finally balanced against the sum of all distributors' entries.

Once the cards are punched, the remaining steps leading to the reports proceed mechanically through IBM equipment, subject, of course, to the sales department's requirements.

Big Four: Although other results can and have been extracted from the sales data, Stanley Hall currently finds that four reports yield all information pertinent to his purposes.

Briefly, this is the nature and purpose of each of the laundry and dry cleaning chemicals reports:

- **Distributor Recap:** Beamed primarily at cooperation and control of the distributor, this gives a monthly summary of total sales of each product. It also carries this-year-to-date and last-year-to-date figures. Sent

with an accompanying letter, this report, points out Hoffman, serves to analyze the distributor's condition, makes for closer relationship.

- **Salesman's Summary:** Essentially a play-back to each salesman of all sales credited to him for the preceding month, this report enables him to review each transaction, keep on-the-spot watch of his accounts. Sales commissions are also computed on the basis of this summary.

- **Salesman's Recap:** Designed as a supervision tool, it provides current month, current year-to-date and previous year-to-date figures, thus enabling the salesman, his regional supervisor and the home office to review his progress, spot distributor shifts.

- **Quarterly Territory Summary:** Serving as a sales analysis tool, this compilation lists each customer in a territory, together with his record of purchases of each product, month of purchase and through which distributor obtained. For the salesman, it provides a pattern for planning calls, concentrating on most profitable accounts. For the home office, it can be useful in planning salesman's efforts for several months ahead, setting up new territories, splitting or reappportioning old territories. It is also of great value in providing a new man with detailed account information.

Satisfied User: This skeletonized list by no means exhausts the possibilities of the four reports that Brown turns out for the sales department. Hall admits that he finds them valuable for more general purposes:

- Prospect lists to determine new product sales potentialities among existing accounts;

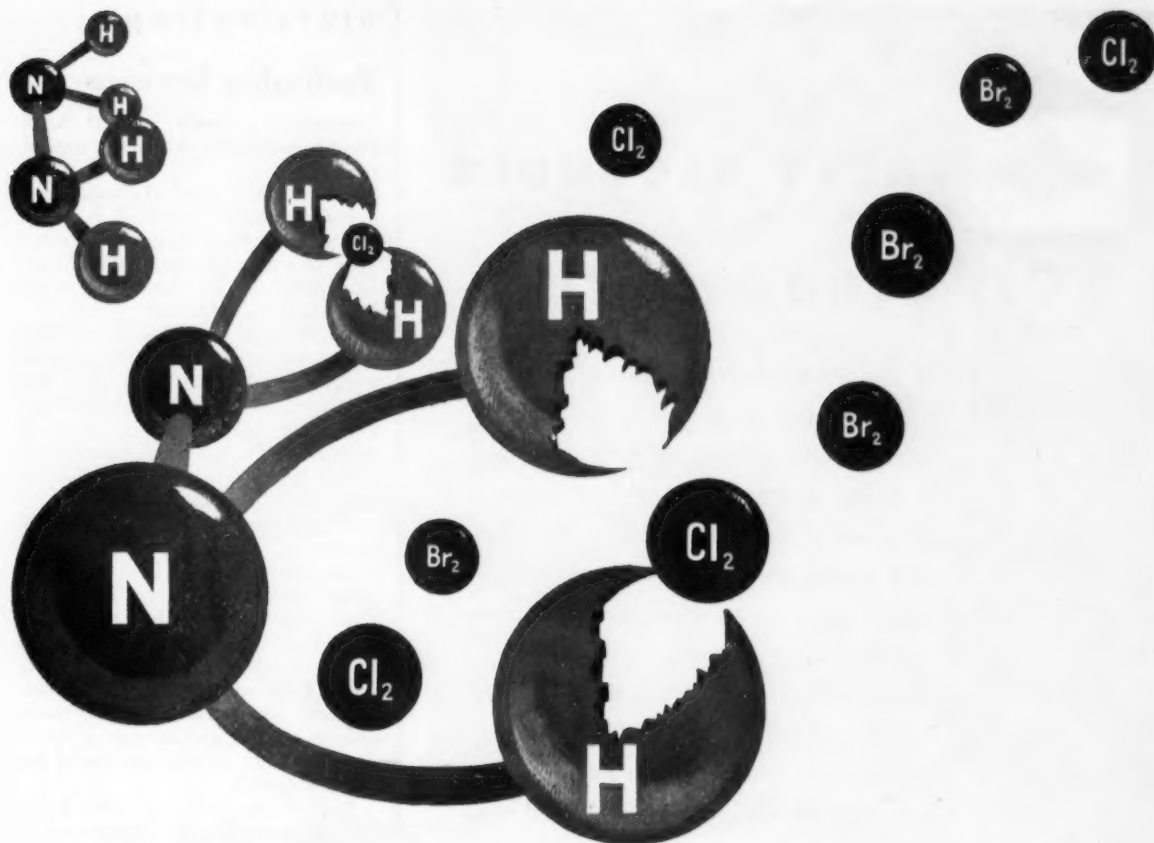
- Promotional activities conducted by the sales department.

All affected by the system appear pleased. In particular:

- The distributors have repeatedly expressed their appreciation of the monthly analysis they receive.

- The salesmen's attitude has switched from skepticism to confidence in the tabulating department's figures. Proof? Previously, and for two or three years after their commissions were computed mechanically, each representative kept his own private check on what he earned. Today, however, so convinced are they of the accuracy of the setup that no one ever bothers to keep track of or question Brown's figures.

- And as for the management, they are convinced the system is tops. Affirmed sales manager Hall: "It suits our purpose 100%. I don't know of another manufacturer in our business who can remotely approach it."



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Converting a waste product to a salable commodity is always a good trick.

Up Wisconsin way, just-organized Wisconsin Road Chemical is doing just that, is rolling along with an ever-growing volume of spent sulfite liquor roadbinder to be spread on rural Midwest's dusty byways.

Keystone of its plans for profits: "squeezing water out" to concomitantly pare shipping bills. Between continents, water is nature's cheapest compound, but cased by tank-car steel, its 62 lbs./cu. ft. becomes costly bulk. Boiling off the water usually boils down the customer's bill.

Unpromising Start: Since its development as a roadbinder, the sulfite liquor has been taken from the plant uncut, applied directly, but under these conditions use has been confined to a 100-mile radius from the factory and most was sold within 50 miles. The roadblock: heavily watered shipping costs (whereas competitive processes—oiling and calcium chloride dusting—entail no transporting of inactive material).

Pushed into facing up to the problem of waste disposal by antipollutionists' pressure, several Wisconsin mills recently installed special Rosenblad evaporators. After concentrating from 10 to 50% solids content, the solution is burned as industrial fuel.

With dewatered concentrate readily available, the ambitious Wisconsinites see an opportunity. Currently, the firm will truck the 50% concentrate from Consolidated Power and Paper's Appleton, Wis., mill to enfranchised dealers. Located at distances of 130 to 190 miles from the mill, the distributors will dilute, then apply the syrup to local roads.

Poured on dirt or gravel roads, the waste solution conglomerates the particles to a hard surface, markedly reduces dust. And many counties report reduced maintenance costs. Last year, some 43.8 million gal. of the spent sulfite were dumped on Wisconsin roads.

Dilute or concentrated, haulage costs on a volume basis for the binder are about equal. Applied to the road 100 miles from the factory, 10% binder sells for 2¢/gal. Trucked the same distance, however, a gallon of 50% solution yields 10¢ worth of diluted product. Within this differential, Wisconsin Road Chemical believes the distributor, the mill, and itself can find a profit.

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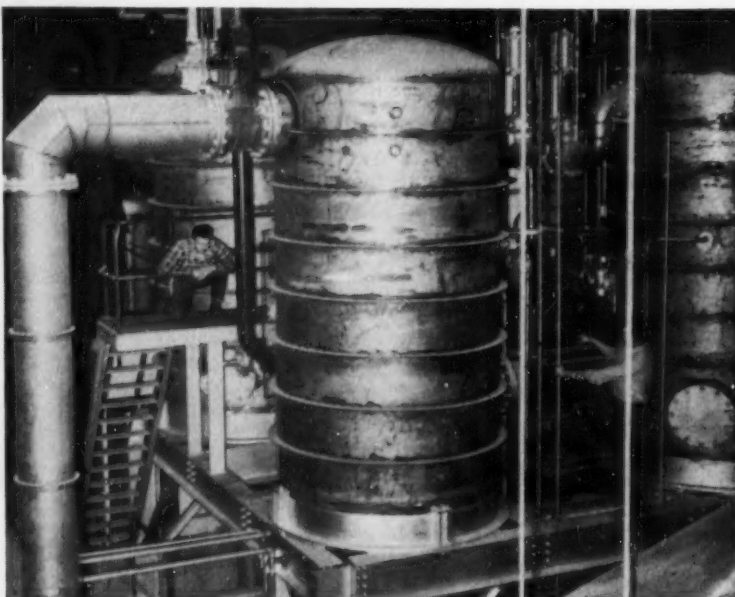


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area, the new setup may alter the seasonal nature of the waste outlet. High in water content, the dilute sulfite freezes in the Badger state's winter weather. With a fair-size mill pouring out 210,000 gal./week, storage is economically unfeasible. But, if the economics pan out, the firm feels, it may be possible to ship south, create an all-year demand.

Curiously, the idea to distribute concentrated roadbinder originated with a group of milk haulers. For several years these companies had trucked and applied the dilute binder.

Inspired by the potentials of dispensing a concentrate, several firms approached one of the mills. Getting a green light, the haulers organized the road chemical company.

Although current estimated mar-

ketability reaches to 600 miles, the Wisconsin company is playing it cautiously. For the present, distribution will be limited to a 200-mile radius. Should the pilot study prove rewarding, operations will increase, possibly beyond the 600-mile limit.

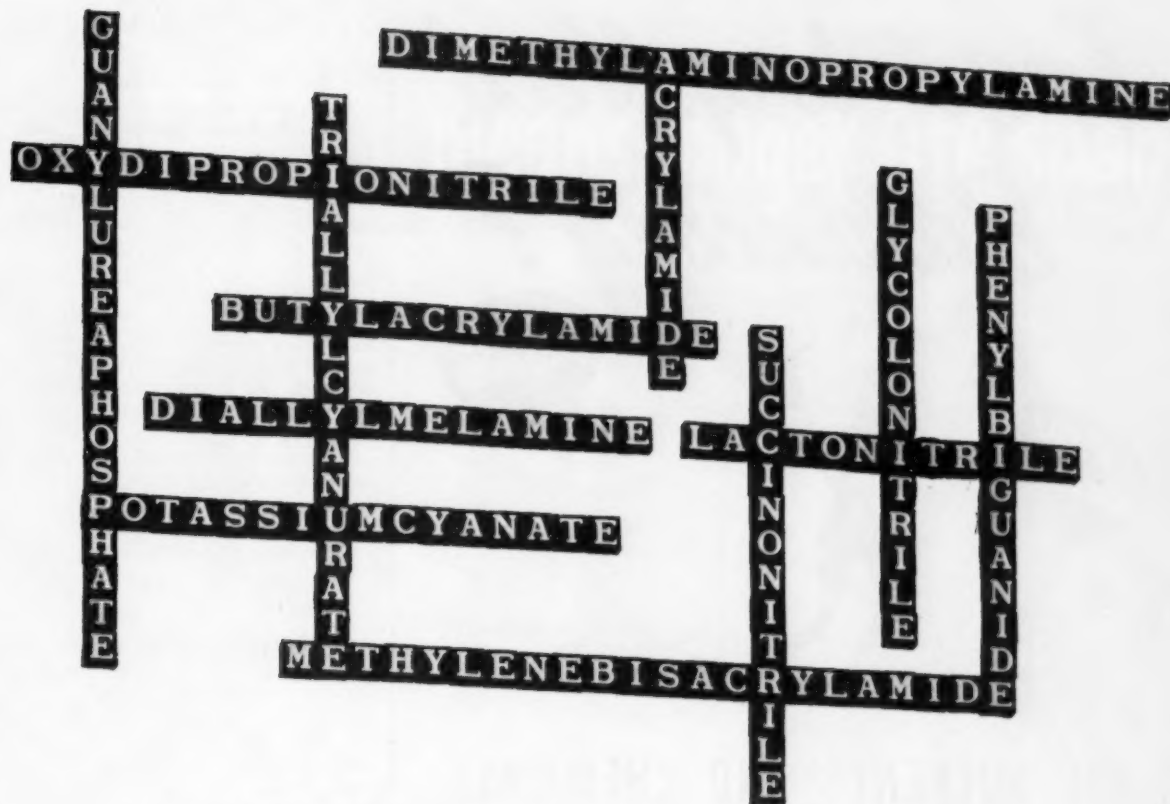
Happy Ending? "What to do with spent sulfite liquor" has long been a problem to the pulp industry. Ordered several years ago to end stream pollution, the industry looked around for an out. Indicated by research:

- Concentrate and burn as industrial fuel;
- Sell as a roadbinder.

Attractive as the by-product use appeared, there was just too much of it. Paper-pulp men decided to sell what limited amount they could, burn the rest. So far, three companies have



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installed the Rosenblad units.

Now, with a good chance for a broadened market, roadbinding may take substantially increased amounts. Hopeful that a profitless waste will emerge a profitable by-product, the paper business will likely watch closely the enterprising truckers.

Distributor appointments:

- Matheson Coleman & Bell, division of the Matheson Co., has appointed Doe and Ingalls, Inc. (Everett, Mass.) its New England distributor of fine chemicals and biological materials.

- Monsanto Chemical has designated Barada and Page, Inc. (St. Louis) to distribute all cylinder quantities of its liquid chlorine in the Midwest. Monsanto will, however, continue direct sales of tank car quantities.

Trichloro Trucks: Further evidence of the trend to bulk shipping comes as Du Pont introduces tank-truck delivery of trichloroethylene. Effective last week, the company now trucks the degreasing solvent in two basic sizes: 6-ton and 13-ton minimums. As a result of the move a company spokesman claims, users gain "substantial savings." The 13-ton price has been set well below that of truck or carload drum deliveries; the 6-ton price, at less than truckload drum rates.

The bookshelf: Selecting rather than amassing, the staff of Freeport Sulphur Co. has assembled useful facts into the Sulphur Data Book. Edited by William N. Tuller, the 143-page volume contains: a brief description of sulfur's physical states; extensive tables of physical chemical data; analytical methods; and bibliography. McGraw-Hill Book Co., \$5.

- "Selling the U. S. Market," a federal handbook reviewing distribution, packaging, advertising, and methods of compiling market data. No. C 18.271:29, Government Printing Office, Washington 25, D.C.

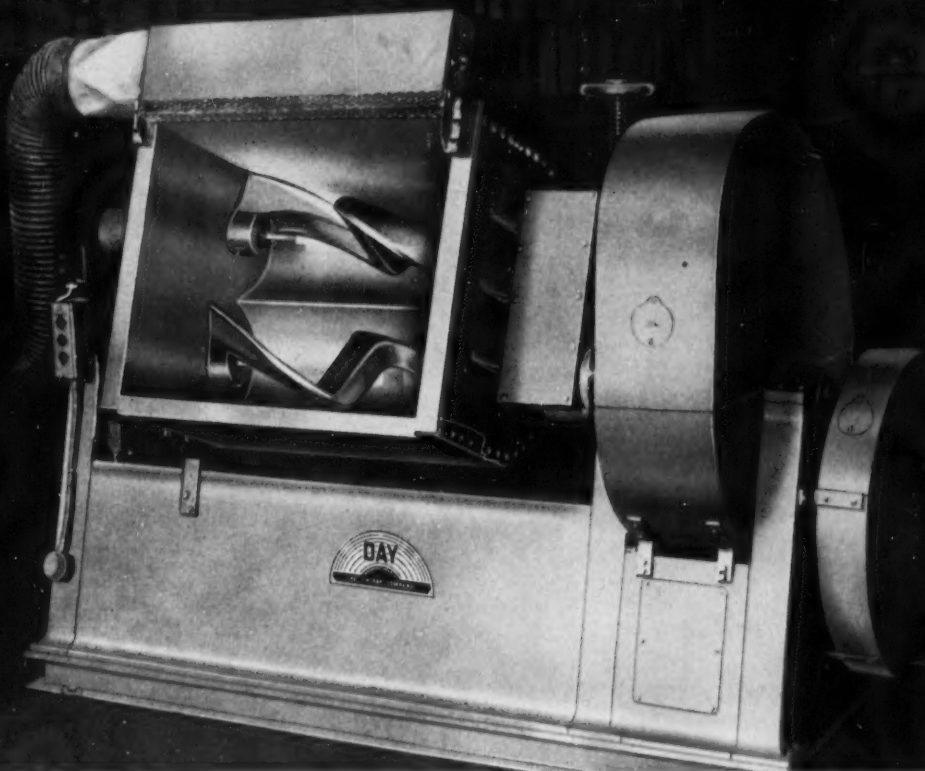
- A booklet, "Analytical Services," detailing Foster D. Snell's (New York) analytical consulting operations.

Twin Addition: Union Oil Co. has disclosed plans to erect a pair of million-gallon storage tanks for aqueous ammonia at Pasco, Wash. Its subsidiary, Brea Chemicals Co., which will run the project, will obtain ammonia from its California plant, ship by water, and distribute it throughout the Northwest as fertilizer.

IN MIXING EQUIPMENT

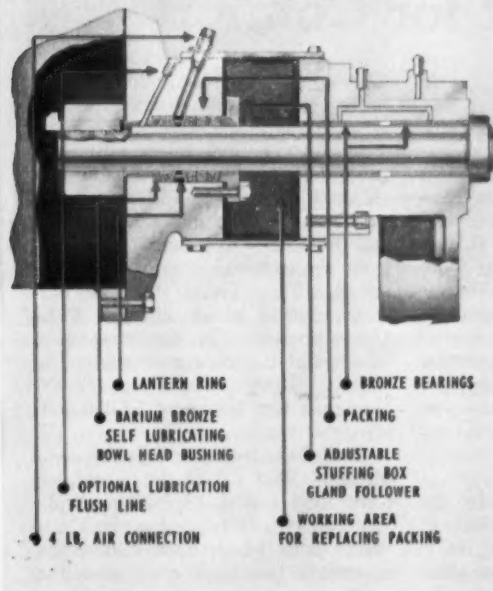
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1 THIS LAB at IMC's Noralyn Mines represents an all-out effort to streamline analytical procedures. It's . . .

Designed for Speed, Built for Comfort

If you walked into the laboratory pictured on these pages, you'd probably notice several things right away. You'd notice, for example, that it is laid out along the same general lines as the shiny new kitchens advertised in the *Saturday Evening Post* so that the people who work there have most of their tools within arm's length. You'd notice, too, that they can either sit or stand comfortably at their benches, that they seldom move from place to place. On closer inspection, you'd see that a man who starts an analysis rarely has a chance to finish it. You'd probably think the whole environment very stultifying to creative work; if you're a research chemist, you'd be horrified.

But the lab isn't intended to provide the right environment for academic research nor the spawning

place for a new product. It's the quality control laboratory at the Bonnie (Fla.) plant of International Minerals & Chemical. When management men decided to dismantle the old facilities and set up the new, they thought they could speed up and simplify the whole analytical procedure.

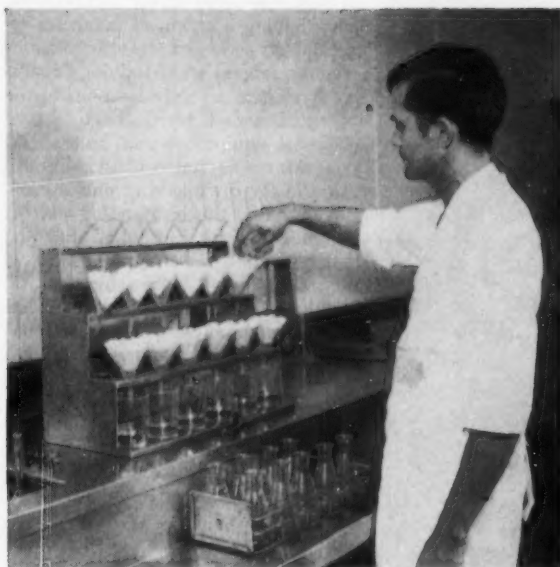
And this week they have no reason to alter their views. Equipment for the new lab cost \$46,000. But after totting up costs for its two years of operation, they find better employee morale, faster, more accurate analyses, and potential reduction in unit cost per sample that will result in a \$40,000/year savings.

Mapping It Out: The idea for the streamlined lab is the direct result of an extensive study carried out by T. M. Ware and his engineering staff.

They conducted time studies, mapped out process charts and flow sheets of all operational methods.

Some of their findings were very enlightening. They found, for instance, that under the old system, one preparation room, one storage room and three labs were handling samples from six scattered operating departments. They found that the labs were running about 227,000 BPLs (bone phosphate of lime analysis, a measure of the phosphate content of rock), 91,000 insolubles, 27,000 aluminum and irons and 17,000 iron separates yearly.

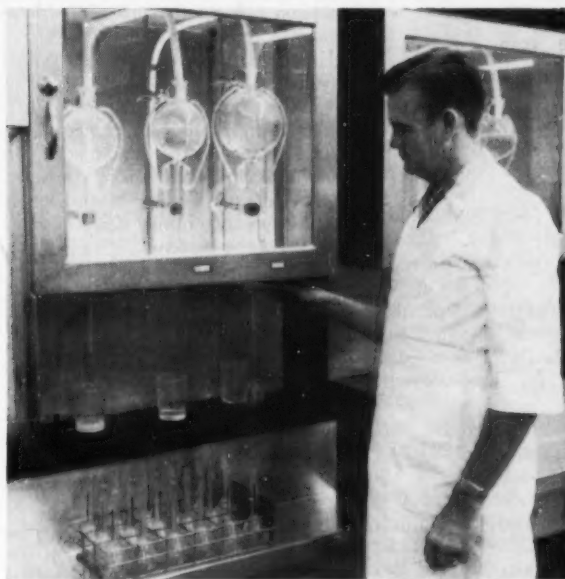
Each BPL took 55 steps for completion. That meant the whole lab force took almost 13 million steps/year just on one type of analysis. It wasn't hard to see how elimination of even a few steps could save the



2 ANALYST, performing filtration, transports several beakers at once in specially designed rack.



3 OLD SYSTEM'S bottlenecks at the balances were eliminated by work specialization and better scheduling.



4 CHEMIST digesting rock with nitric acid has latest equipment to help him do his job faster, more efficiently.



5 PLUMBING at lab is adapted to the job. Here analyst washes batch of precipitates with centrally located hose.

company money hand over fist.

The first job was to find a centralized location for the lab. This would result in better supervisory control, improved accuracy of work and lower operational costs. Most important single factor in the choice of a site was the consideration of the time lapse between taking a sample and reporting the analysis; a report on a bin sample is needed within two hours after it is taken so the conveyor can be controlled to deliver a batch to the proper wet rock storage area.

When the centralized spot was decided upon, the engineering staff went so far as to work up a map showing the employees' homes, to make sure the new site wouldn't work a hardship on them. They considered every conceivable angle before choosing the site.

The new lab was designed with four (rather than the old nine) principal areas of operation. More important, the analyses were broken down so that instead of carrying an analysis through from start to finish,

one man would specialize in only a few steps.

That meant that new men could be broken in faster. And though it might appear difficult to keep a man happy at such repetitive jobs, IMC had discovered that a similar procedure at another lab worked out fine. Apparently, a chemist who has a natural bent for straight analytical work is just as happy on a 2-step job as he is on a 55-step one.

Some of the other improvements over the old lab:



6 FOREMAN in his office can now supervise work formerly done in 3 labs by 6 scheduled operating divisions.

- Previously, there had been bottlenecks at the balances. More equipment was not the solution; for work piled up only at certain times. Modern, improved balances were installed, however, to cut the tedium and to speed up the work. And with only a few men to do all the weighing, and with the workload evenly distributed by the lab foreman, the bottlenecks vanished.

- Under the old system, ammonium nitrate solution was heated to a given temperature over a stove. If overheated, it had to be cooled under cold water. This consumed 2 minutes or 1.22 man-hours/day. Now the temperature of the solution is controlled automatically.

- A multiple stirrer on one operation saved a man from walking 8 ft. from the first sample station to the last analytical bench. This eliminated 142 miles/year of walking. Another man had to walk 88 ft. to turn on a vacuum pump, the same distance to turn it off. A switch on the bench saved him 1.22 miles of walking daily.

- Color dynamics was employed in designing the lab. Red is used to denote acids, walls are finished with restful colors. Where titration are carried out, the aim is to reduce eye fatigue by providing better light and a nonyellowing white background.

- Racks were specially designed for transporting glassware. Thus a man can process and carry ten

beakers at a time instead of the two or three he can normally handle. They reduce at-the-bench handling, too, since work can be done on the glass without moving it from the racks. These racks saved $2\frac{1}{2}$ man-hours daily on BLPs alone.

- The BPLs call for 2,700 liquid volume measurements a day. Automatic burettes and pipettes proved faster, safer.

- An automatic washer that cleans 815 pieces per shift was installed to handle flasks and beakers; one was designed specially for long-necked volumetric flasks.

- Benches were built just 38 in. high to enable the men to stand or sit comfortably at them.

- Laboratory equipment and furniture was custom-designed, providing labor savings of \$16,100/year. Had standard equipment been adapted to the job, yearly savings would have been reduced to \$10,800.

The net result is a lab that embodies many of the mass-production ideas of the production line. And though the pure scientist would probably revolt at the whole idea, it's a suitable adjunct for the plant it serves.

Accent on Cost

The four-day meeting of the American Institute of Chemical Engineers, Springfield, Mass., last week made barely a ripple on the pleasant easy pace of the town. But it did have an impact on the men who went there

to exchange ideas on ways of building and running a chemical plant.

Subjects covered by the various sessions ranged from training "industry freshmen" to considerations of the practical and theoretical aspects of chemical equipment and unit operation. Materials for construction also came in for discussion at one session. But probably the outstanding part of the meetings for most, and the one that generated the most interest, was the one dealing with cost control. Standard Oil's M. D. Carpenter led off the program with a talk on controlling research costs. Ralph De Simone (Construction Control), David Pierce (Diamond Alkali) and Winfield McNeill (management consultant) followed with their ideas of keeping costs down during construction and operation of the plant. Leonard Sedar (consultant) highlighted some means by which statistics could take the guesswork and judgment out of quality control program. John F. Magee topped the session off with a luncheon talk on the union of operations research and cost control.

Here are some of the key points they made:

- When building a plant, pay particular attention to your choice of architect-engineers, then make sure you know what you want before you start. Change of mind after a project is under way is one of the simplest ways of losing your bankroll.

- To control your operating costs, first determine what they actually are. Then set a reasonable standard for what they should be and set about reducing the spread between the two.

- If you want to bring the costs down, you've got to organize for that purpose. But don't expect miracles overnight. Establish the best program you can and give it a year before looking for results.

- When applying statistics to the problem, let the product tell on the process. In short, measure the product to find out the operating variables that are most likely to affect it. Forget about 100% inspection and concentrate on the areas where one is most likely to go astray.

EQUIPMENT

Time Saver: Engineering Corp. of America (Westfield, N.J.) will soon offer retractable gear assemblies for magnesium anodes to the chemical process industries. The unit will come complete with quick-opening valves and a year's supply of anodes. Use of the assembly, claims Encoa, will permit anode replacement under

PRODUCTION

pressure, consequently will reduce down time. Still growing, the application of magnesium anodes for the cathodic protection of condensers, storage tanks and the like against corrosion, has yet to reach its full potential, but currently is drawing the interest of many corrosion engineers (CW, May 15, p. 52).

Myth Dispeller: National Safety Council (Chicago) is out with a new book titled "The Woman on the Job". A survey report, the book takes aim at the many myths pursuing the United States' 15 million female workers, demolishes many concerning their physical and emotional suitability for production work. Some of the survey highlights:

- Women are not as strong as men, cannot do the heavier industrial work unaided by mechanical material handling devices.
- Women are smaller than men, often require readjustment of machines and machine guards to safe operating positions.
- Women are no more accident-prone, are no more subject to fatigue, are no better at monotonous work, have no greater dexterity, nor is their mechanical ability less.

Name Change: Gorman Mfg. Corp. (wholly owned Los Angeles subsidiary of International Resistance Co.) has changed its corporate name to Ircal Industries.

Valve News: Parker Appliance Co. (Cleveland) is adding two series of check valves to its line of hydraulic equipment. The valves, says Parker, were designed to provide tight checking and to withstand the mechanical shock of continuous poppet action against the valve seat on all hydraulic systems operating at pressures to 3,000 psi.

• Hoke Inc. (Englewood, N.J.) is offering a new series of small bellows valves for use in highly corrosive applications, high-vacuum work and mass spectrometry. Some members of the series are currently available with air motor connections for remote operation.

• Barksdale Valves (Los Angeles) has developed a new sub-base to increase mounting flexibility of its ½-in., 4-way valves. The sub-base bolts flush with a production manifold, resembles a four-leaf clover flanging out to a square base. Design of the unit permits four process lines to feed into the clover from the bottom or into the square base from the side or into both in any desired 4-way feed combination.

No. 1 of a series

How Bemis makes GOOD multiwall bags for you



A. R. Ewing, director of the Bemis Paper Control Laboratory, has twenty-nine years' experience in this field. He is shown operating the laboratory's electro-hydraulic tensile tester, one of the many precision devices that go to make the Bemis laboratory probably the most complete in the country devoted entirely to bag papers.

Use good paper... test it... prove it!

Bemis sets high standards for the various papers used in making Bemis Multiwall Bags. And we are able to maintain these standards because we buy our paper from a variety of top sources. These multiple sources are the key... if one should fall below par, the others are there to supply our needs. We don't have to take less than the best.

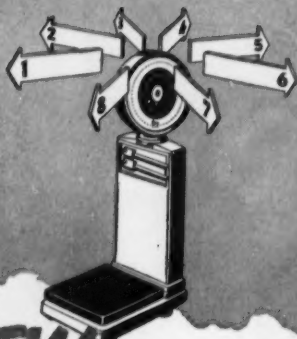
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New Toledos provide utmost reading convenience for operator . . . help you control costs with greater *speed* and *accuracy*. On all new Toledos with swivel heads the dial can be installed to face any of eight directions in relation to the platform; also with full 360° swivel.

44 Ways Better . . . See the great new Toledo Industrial line . . . put it to work in guarding your costs better . . . faster. Write for bulletin 2001. Toledo Scale Co., Toledo 1, Ohio.

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PRODUCTION



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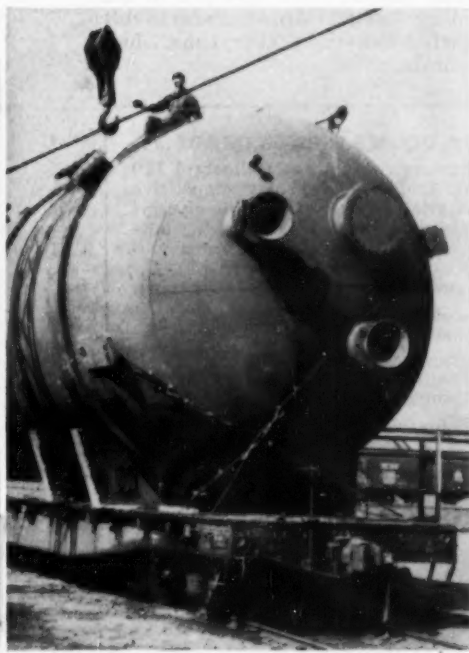
THEY USED practically everything but camels to move this giant, 75-ton vessel from Houston to East St. Louis (Ill.). It's a reactor made by the Lummus Co. for Socony-Vacuum's new refinery. Normally it would have been shipped in parts and welded on the spot. But a tight schedule





and Sea

required that the bulky equipment be transported intact and to make matters worse, it couldn't be hauled all the way by rail because of insufficient clearance in spots and it was too heavy to be transported all the way by truck. The final compromise involved both—and barge as well (*see cut*).



May 29, 1954 • Chemical Week

BACKGROUND: PHOTOMICROGRAPH
OF A LAYKOLD ASPHALT EMULSION

No lower cost multi-purpose emulsions are available to industry. Laykold Asphalt emulsions are being used as additives, extenders, adhesives, binders, coatings and sizings.

Use **Laykold**[®] Chemical Type
Asphalt Emulsions
to lower base material costs
in your product

IDEAL PROPERTIES—Chemically inert asphalt emulsions are compatible hot or cold, wet or dry, with most resins, latices, fine fillers, fibres, aggregates, glues and other elastomers.

You can order asphalt emulsions hard or soft, ductile or "short", viscous or thin, tough or brittle.

THESE USERS ARE SAVING MONEY

1. Special *plywood resin glue* was very expensive. Extension with an emulsion cut the cost without serious loss of holding power.
2. Special asphalt emulsions of unusual stability are used in compounding *undercoaters* and *sound-deadeners*.
3. A new light-weight *building material* was bulked with a Laykold emulsion, giving added insulation and water-resistance at low cost.
4. A costly *latex emulsion adhesive* was easily extended with a compatible low-cost emulsion product.
5. A company making their own asphalt emulsions for compounding into a *flooring adhesive* found that they could purchase a basic Laykold product in bulk at less than their own manufacturing cost.
6. Both the wet and dry strengths of a variety of *paper products* were greatly improved and costs lowered by the addition of Bitusize asphalt emulsions.
7. *Mineral fillers, fibres and aggregates* of all kinds may be coated or bound in the moist or dry state with various Laykold emulsions, to produce unusual end products.

AMERICAN Bitumuls & Asphalt COMPANY

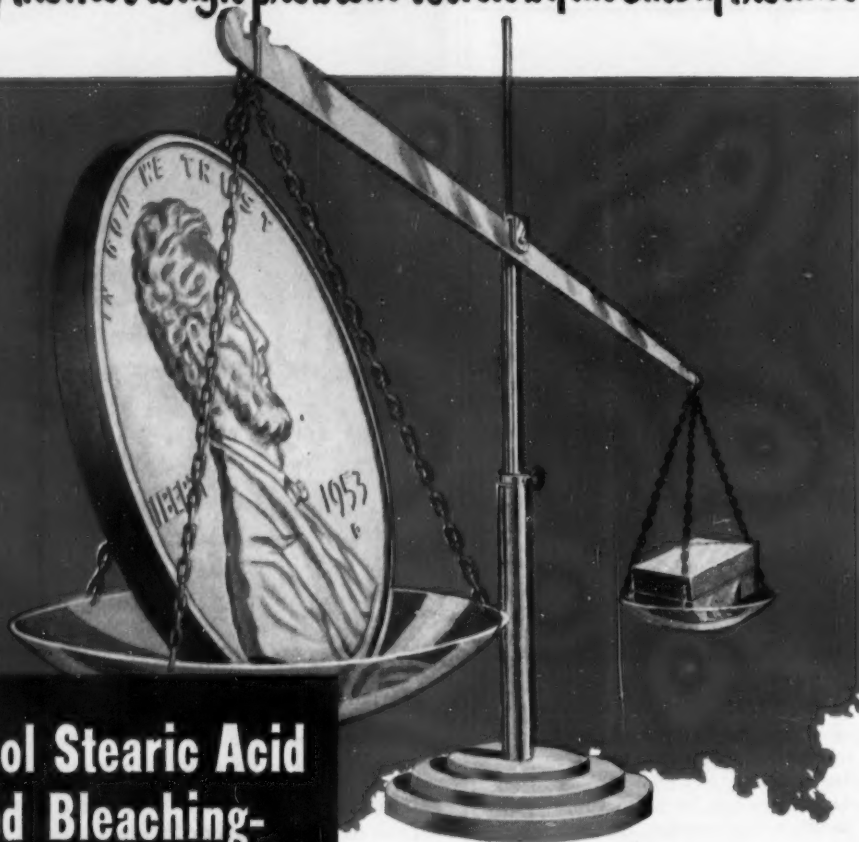
200 BUSH ST., SAN FRANCISCO 4, CALIF.
E. Providence 14, R.I. Perth Amboy, N.J. Baltimore 3, Md. Mobile, Ala.
Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La.
St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif.
Portland 7, Ore. Washington 6, D.C. San Juan 23, P. R.

Use Our Research Laboratories—

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**CASE
HISTORY**

Another tough problem solved by an Emery Product



How Emersol Stearic Acid Eliminated Bleaching- Saved $\frac{1}{2}\text{¢}$ a Pound

By using Emersol 132 Lily Stearic Acid in place of an ordinary triple-pressed type, this manufacturer of *esters* was able to attain the desired color of his product *without bleaching* and without spending extra money, because Emersol Stearic Acids cost no more than ordinary grades.

In this actual case, the exceptional *color-stability* of Emersol 132 resisted the darkening that normally occurred during high-temperature esterification. Not only was the cost of bleaching eliminated (labor and materials), but the yield of finished product increased by the amount normally trapped in the discarded filter cake.

The outstanding stability of Emersol Stearic Acids can mean as much to you. Even where color is not of primary importance, their superior resistance to rancidity and to oxidation are extra benefits that

make any product *more salable*. Since they cost no more than ordinary grades, it will *pay you* to use Emersol Stearic Acids—available in all grades to suit your specific need. Next time...everytime...buy Emersol Stearic Acids.

IF YOU USE A DOUBLE PRESSED GRADE...

Here's one of many reasons why Emersol 120 Standard Stearic Acid is preferred over competitive double-pressed grades. These colors of *glyceryl monostearates* clearly show the value of the outstanding *color stability* of Emersol 120. The monostearates were esterified for 5 hours at 250° C, under a CO₂ blanket, with no bleaching or refining.

<i>Glyceryl Monostearate made from</i>	<i>Lovibond Color (5¼" Cell)</i>
Emersol 120 Standard Stearic	6Y/2.7R
Competitive Double Pressed "A"	9Y/4R
Competitive Double Pressed "B"	28Y/8.5R

Write Dept. I-5 for full information on all Emersol Stearic Acids.

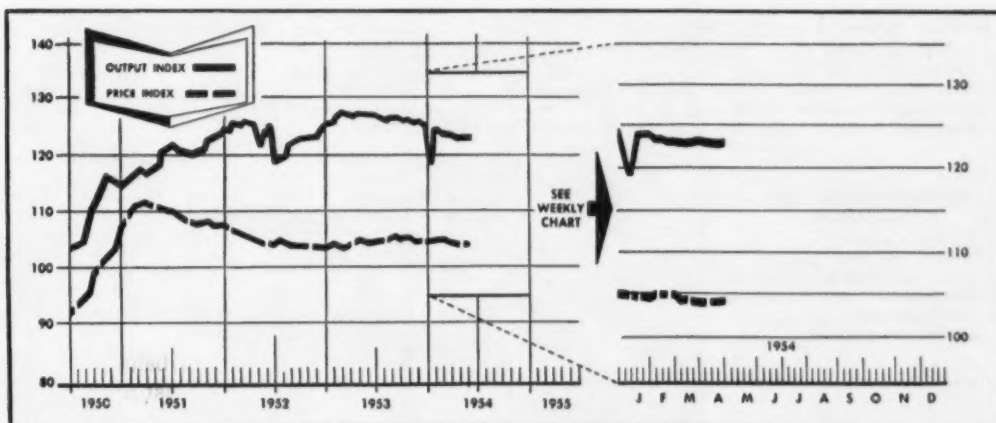


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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Usurping the spotlight on the markets stage this week is revelation that supply demand factors continue to squeeze sodium sulfate (salt cake) prices to higher levels.

The tightening in supplies (of nearby available material) has been highlighted by spot section increases throughout the country. But now Reichhold Chemicals' move—hiking phenol-derived cake \$3/ton (bulk) effective June 1—may well have almost all producers playing follow the leader.

Reasons behind the current sulfate situation, of course, are manifold. All are tied in, however, by the fact that it's produced as a by-product of rayon, muriatic, phenol and chrome output. Auto makers, for instance, aren't taking chrome as fast as they have been; rayon manufacture (from which much of the cake is recovered) has been generally slowed; some muriatic facilities have been cut back.

Add, too, the drastic falling off of overseas imports and upped consumption by sulfate pulp, other outlets, and the scales apparently tip toward the tight side.

Actually, consumers are getting all the sulfate they need, but it's a case of stretching for supplies, paying more freight on farther-away material. Some are reportedly paying as high as \$19/ton, while most normally expect to keep freight charges under \$10.

Some anhydrous ammonia customers are already being notified about new prices for the upcoming fertilizer year, which officially starts July 1.

Late last week, one major producer posted these contract tags: \$93/ton during the January-through-June period of 1955; \$88/ton for October, November and December (1954) deliveries; and \$85/ton during July, August and September of this year. Spot prices are pegged \$3/ton higher than the contract quotes.

Agricultural demand for the anhydrous material continues insistent, which leads some marketers to believe there'll be no significant

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.3	123.2	126.8
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.3	104.3	104.4
Bituminous Coal Production (daily average, 1,000 tons)	1,183.0	1,129.0	1,518.0
Steel Ingot Production (1,000 tons)	1,680.0 (est.)	1,712.0 (act.)	2,262.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	303.9	303.1	253.2

MONTHLY INDICATORS—Trade (Million Dollars)	Manufacturers' Sales			Manufacturers' Inventories		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	\$24,045	\$23,620	\$25,763	\$45,698	\$46,115	\$44,797
Chemicals and allied products	1,685	1,590	1,704	3,081	3,080	2,931
Papare and allied products	722	676	711	1,064	1,048	1,052
Petroleum and coal products	2,163	2,139	2,065	2,644	2,719	2,597
Textile products	1,034	1,035	1,160	2,465	2,455	2,616
Leather and products	285	274	278	561	573	533

letup even through next month. Reason for the stretch-out in orders: this year's late planting season.

Come and get it—early. That's the unsubtle suggestion behind U. S. Steel's new ammonium sulfate schedules. Customers in the East and South, who line up for the June-through-October deliveries, will get a \$2-\$3/ton price break.

The new pricing policy—effective June 1—will see ammonium sulfate out of most shipping points bearing a \$42/ton (bulk, f.o.b.) price.

Although the business is still clipping along—with conditions in some areas even maintaining a hint of tightness—the situation should ease shortly, offering the early-bird consumer a chance to stock up at the lower prices.

There's no indication at what level the coke-oven sulfate maker will mark his material after October, but chances are it will be higher than the now-announced five-month schedule.

There's some question in the methanol market, however, as to just where prices are or are likely to go. For instance, despite the beginnings of a decided pickup in demand from antifreeze packagers (getting ready for the new season), the keyword in bulk sales pricing discussions between methanol sellers and canners seems to be "negotiations."

While the over-all U. S. methanol pricing structure is holding fairly steady, there are a few local, noticeably soft spots: the Chicago and Minneapolis areas, for example, where even usually firm tank car prices have slipped to a 26-27¢/gal. range.

Producers, who are more or less successfully stemming the price-cutting tide in the national marketplace, will have their firmness bulwarked as methanol orders begin to mount.

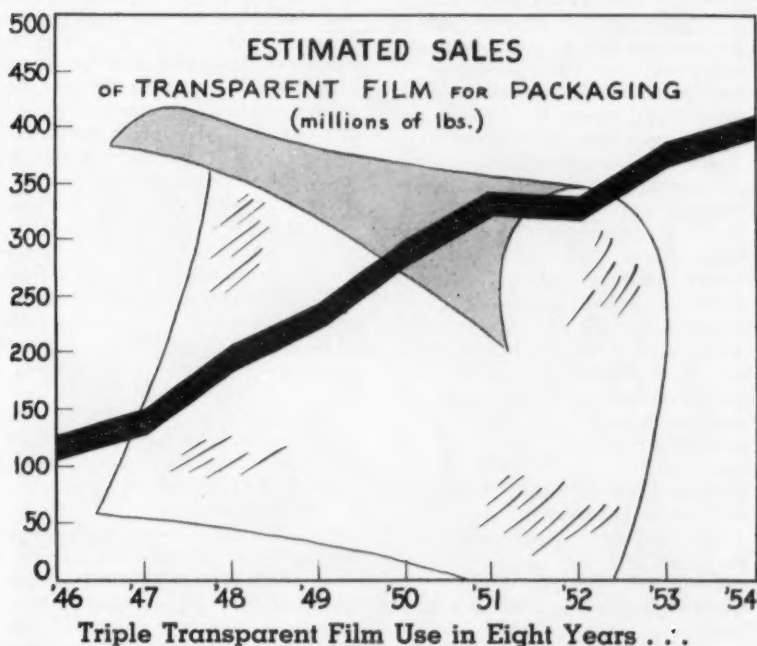
SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 24, 1954

UP	Change		New Price		Change		New Price
Cottonseed oil, crude, tanks, Southeast	\$.00125	\$.14375		Mercurials			
Shellac, lemon, No. 2, bgs., 10-bg. lots	.01	.40		Chloride, NF, cryst., drms., 50-lb.			
Tartaric acid, imported, bgs.	.02	.34		lots or more	.40	4.58	
				Red iodide, NF, fib. drums	.30	7.27	
				Red oxide, NF, powd., fib. drms.	.50	5.42	

All prices per pound unless quantity is stated.



Cleanliness, Convenience, Good Appearance . . .



Wrapping Up New Markets

Not many segments of the chemical process industries look forward to a record-breaking volume of business during 1954, but at least one—transparent packaging films—expects no letup in the sales-surging it has experienced the past few years.

The flexible plastic packaging film industry, bit-champing along at about

a 125-million-lbs./year pace under World War II-invoked controls and mandatory restrictions, thereafter broke into an unfettered gallop that may well carry sales up over the 400-million-lbs. mark by year's end.

The number of plastic films, too—for the most part derived from synthetic resins or polymers—has wid-

ened considerably since then. For example, in 1946 the 127.0 million lbs. of material sold for transparent packaging consisted mainly of cellophane, cellulose acetate, and Pliofilm (rubber hydrochloride).

Today cellophane leads—to the tune of a near-80% of the films consumed—a parade of flexible materials including, in addition to the acetate and Pliofilm, ubiquitous polyethylene, cast vinyl, Saran and Saran modifications (polyvinylidene chloride), Cry-O-Rap (modified polyvinyl chloride and nitrile rubber), and ethyl cellulose.

Prime motivating factor behind the spectacular growth pattern of these films, of course, has been—and is—the U.S. shoppers' acceptance and increasing demand for visual-packed merchandise. It's a debatable point whether the trend to self-service markets was sparked by development of new films and special packaging methods or vice versa, but significant is the increase in the number of grocery stores with complete self-service meat facilities—from 178 about 7 years ago to 6-7,000 today.

And the meat and poultry outlet for films—a relatively small one (*see end use pattern*)—is still wide-open for expansion. A current Commerce Dept. report on Containers and Packaging comes up with these pertinent estimates:

- Of the approximately 16 billion lbs. of meat consumed annually in the U.S., only some 4 billion lbs. is at present packaged in transparent film; that siphons some 40 million lbs. of film.

- Of the near-2.5 billion lbs. of fresh poultry consumed, about 858 million is plastic-wrapped—an 8-million-lb. film market. In addition, frozen poultry—which accounts for about 21% of all poultry sales—takes an estimated 1.5 million lbs. of the packaging film produced. And that use could well be doubled.

Fresh fruit and vegetables, too, are a fallow field for the film makers and converters. At the moment, just about 4-5 billion lbs. are prepacked in transparent films—or only 10%, roughly, of the fruits and vegetables consumed. And further use of films for produce-packaging appears to be charted upward: in 1950 it was estimated that 12 million lbs. was used for this purpose; a scant 3 years later, consumption was up some 67%, is currently running at more than 20 million lbs./year.

Clear Sight On Outlets: Cellophane, pry-opener of many of today's transparent flexible film markets, has

long maintained a volume superiority over the relative late-comers—and will likely hold the lead for some time to come. Last year three U.S. producers furnished the cellophane that wrapped up better than 300 million lbs. of the packaging outlets, left a scant 88 million for all other films. Expansions, under way or contemplated, will boost the industry's output capabilities to some 350 million lbs. in the not-too-distant future.

About 75% of current cellophane production is devoted to the packaging of foods, the balance to tobacco products, textiles, drugs, paper products and a host of other lines.

Cellophane wrapping material is available in some 14 different classifications and more than 100 different grades or types, including, of course, some still nonmoistureproof film for use where moisture protection is not needed (e.g., general wrapping purpose, for packaging oily and greasy products, ribbons, cords, decorative materials).

Cellophane's versatility may be a prime factor in its long-time domination of the baked goods field. At the moment more than 75 million lbs./year is used to protect and enhance the sales appeal of breads, crackers, biscuits, sugared doughnuts, iced pastries, and a host of other products. Approximately 53 million lbs. of all other flexible materials fills the balance of baking industry requirements.

Polyethylene Pushing: Though not as completely transparent as cellophane, polyethylene is tabbed by some observers as the most likely of the various "new" films to come anywhere near the old-timer's consumption level. Currently some 40 million lbs. of polyethylene film is used in packaging.

With at least nine U.S. companies expected to be producing polyethylene resin within a couple of years, an ever-increasing proportion of output will go into film. It remains to be seen, however, whether or not one major maker's recent optimistic estimate will crystallize—that within two years 55-65% of all polyethylene flake will wind up in packaging end uses. More specifically, those uses might include (1) films, (2) coatings, (3) molded applications, (4) additives (e.g., in waxes used on bread wrapping papers).

It's a fact, though, that improvements in film production processes, as well as stepped-up availability of the resin (and at lower prices) have given polyethylene film a push toward becoming one of the less expensive wrapping materials in terms of cost/

End Use Pattern

Transparent Flexible Films (estimated)

Bakery goods	33%
Meats, Poultry	12-13%
Confectionery, Gum	8-10%
Fresh Fruits Vegetables	5%
Other foods (popcorn, potato chips, teas, coffee, etc.)	20-23%
Tobacco items	13%
Other nonfoods (textile, leather, hardware, etc.)	9-10%

unit of surface that it covers.

No hindrances either are these characteristics: excellent chemical inertness; freedom from odor and taste; inherent flexibility (without the use of added plasticizers) even at extremely low temperatures; its toughness; and heat-sealing properties.

Greater package durability affords polyethylene film an added edge over cellophane in the packaging of heavier items such as potatoes, apples, citrus fruits, where the produce unit weighs more than about 3 lbs. or so.

And its low-temperature imperviousness, too, is acknowledged by the common use and reuse of polyethylene bags for storage of foods in the family freezer.

One Plus One = One: Typical of the frequent developments that have improved the protective and handling qualities of flexible packaging films are some surprising combinations: polyethylene-coated cellophane, for instance, is rated as one of last year's packaging highlights. The process, extrusion-coating, is the same as that previously used to lay a film of polyethylene on paper and glassine.

The marriage of these two major packaging materials produces a film said to possess qualities of both polyethylene and cellophane and at a lower cost than for laminating two separate films. Right now they're being used for liquid and detergent packs, textiles, foods, and where the greater clarity, strength, and ease of handling on automatic equipment outweighs the disadvantage of higher cost over a single ply of either film.

Rapidly stepping out of a curiosity class, too, is a Saran-coated cellophane. Here the modified vinylidene chloride polymer coating lowers cellophane's rate of water-vapor transmission, as well as imparting greater strength, dimensional stability and

resistance to acids, alkalis, gases. It also aids in minimizing the effects of aging.

Some applications—which have caused the original producer to double output this year, while a second cellophane maker plans to swing into full-scale production soon with his own version—are these: dried fruit (prevents "sugaring," which is due to low WVT and resistance of the coating to deterioration); soap (to give better protection against loss of perfume and moisture); chewing gum; popcorn; hosiery and other lightweight textiles, and many others.

Straight for Saran: All the qualities listed above for the Saran coating, of course, apply in a great degree, to the straight vinylidene chloride. Shortly after its commercial introduction (1939) Saran film—as well as other forms of the fabricated Saran—were completely taken over by the Armed Services.

Not until after the war, however, was a Saran film developed that could be adapted to food packaging. An exceptionally low gas permeability—one necessary requisite in the preservation of full flavor and freshness—is expected to widen markets. Reason: the same protection is currently afforded by laminations of certain films to dissimilar materials, but Saran is said to be the only transparent film now commercially available that can be used alone as a gas barrier.

At the moment inroads are being made into cheese, meat, dried fruit and confectionery packaging fields, as well as in some nonfood uses such as packaging of ground-in-oil paint pigments, putty and caulking compounds.

More recently, Saran film in rolls established a beach-head in the vast household-use market bucking well-established rivals like wax paper and the newer metal foils.

Rubber in Early: One of the earliest flexible films, radically different because of a rubber rather than cellulose base, is Pliofilm. The rubber hydrochloride film is produced by treating a natural rubber cement with hydrogen chloride gas, and the resulting resin is neutralized, solvent-dissolved. The solvents are then evaporated by heat, leaving a transparent film.

The material is inherently moisture-proof, and this, plus the property of making strong seals, has opened up a successful use in the packaging of some liquids and foods with a high moisture content. The latter includes natural cheeses, meats, and products packed in brine.

It's well-nigh impossible to pinpoint production and consumption data for most of the flexible films, and rubber hydrochloride is no exception. Use in the packaging market, however, probably exceeds 12 million lbs./year. Growth over the years has been steady, though; and, in the words of the sole producer of Pliofilm, it's "substantially greater now than during 1946."

Third of a Trio: Cellulose acetate, one of the three early films used for packaging, has also taken long strides since then. Currently some 15 million lbs. of the film goes for wrapping fresh produce and other consumer products. Eight years ago the quantity was 5 million lbs.

Because of its insensitivity to softening by water and high rate of water and gas transmission, acetate transparent film has a firm hold on part of the fresh produce packaging market. West Coast spinach packers, for instance, have enthusiastically taken to acetate's "breathing" char-

acteristic. Lemons, limes, tomatoes, mushrooms, too, are increasingly being wrapped in the material. A related and increasing use is in windows for paperboard boxes.

Outlook Clearer: Although the major packaging use of all transparent flexible films in the postwar years has been for foods, and growth potential in this field is great, the spread of the self-servicing idea to other than grocery stores will likely provide another significant catapulting of film sales.

Department, variety and hardware stores, in particular, are daily switching to the serve-yourself system. And with the changeovers come an increase similar to foods' in requirements that merchandise be packed in eye-appealing, transparent, protective films.

It's not beyond the realm of possibility that the accelerated trend toward clerkless retail establishments may soon double last year's \$240-million flexible film packaging business.



Titanium Whirligig

Titanium continues to understudy heavier metals in a multiplicity of uses, underscores the government's urgency to hurry along expansion (*CW Market Letter*, April 17). Latest outlet: replacing alloy steel as a skin covering for helicopter rotor blades. The parts, shown being prepared for shipment to the Philadelphia Navy

Yard, will undergo Bureau of Aeronautics whirl and flight tests this summer.

A ship-set of six blades will use only 52 lbs. of titanium, but resultant over-all reduction in weight will amount to 68 lbs., say the designers and manufacturers, Prewitt Aircraft, Clifton Heights (Pa.).



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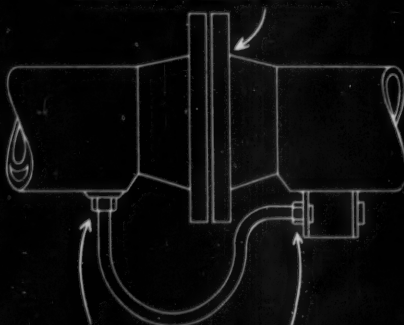
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Cross-section view of UNITRACE. Crescent-shaped section
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W. A. Kirkpatrick (left), Vice President and Technical Director of Allied Paper Mills, Kalamazoo, Mich., inspects automotive catalog printed on a new Allied stock with Robert W. Hagemeyer, Wyandotte representative, and Clinton J. Wainwright, Allied Sales Representative (right).

"We look to Wyandotte for current needs, and help on future developments"

— W. A. Kirkpatrick, Allied Paper Mills

"We specialize in the manufacture of fine printing papers for both letterpress and offset," states W. A. Kirkpatrick, Vice President and Technical Director, Allied Paper Mills, Kalamazoo, Michigan.

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for cooking old paper stock and de-inking. Wyandotte representatives and their research organization have been very helpful to us in our regular production, as well as on special projects. For example, Wyandotte helped us greatly in the development of our new three-stage bleaching operation (one of the most complete and finest in the industry). This development enables us to get fibers from waste paper fully equal—and in some respects, superior—to virgin pulp."

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GRAVEL BEDS make lush gardens via hydroponic farming.



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PHOTOS—WIDE WORLD

No Plow, No Hoe, Just Harvest

As more than a possible plant site, Puerto Rico has recently caught the eye of U.S. plant nutrient manufacturers. For in Puerto Rico, where hardly 10% of the land is considered first-class farmland, hydroponic farming is now being pushed.

Two "farms" are already in operation; one has been a commercial success for more than a year. And it is not unlikely that government aid will be provided to small farmers who want to reap hydroponic harvests for family use.

Commercial growing is where hy-

droponic farming or nutriculture is getting its start, however. At Cy Robbin's 5-acre unit on the island, now devoted to tomato growing, yields of 30 tons/"acre" are common. Robbins, a Miami, Fla., plant physiologist who studied at Johns Hopkins, is also experimenting with strawberries and squash, has a 120-acre area available for future utilization.

Nutriculture itself is, of course, no longer a novelty. Nor does it require anything particularly novel in plant foods. As in any farming, nitrogen, phosphorus, potassium, sulfur and magnesium are key nutrients. Micro-nutrients, manganese, boron, zinc, iron, cobalt and molybdenum are also vital.

Liquid Diet: These minerals, as soluble salts, are supplied to the plants as a number of special "feeding formulas." The hydroponic gardens are shallow concrete beds filled with gravel; the feeding solution is run in through the bottom. Plants don't grow in a bath of fortified water; the formula water is introduced and drained at selected intervals, often twice daily.

Big advantage of the gravel gardens is the speed with which plants grow. Tomatoes can be picked in 70-75 days after planting, about half the time required for ordinary soil-grown plants. Robbins says he averages 9,000 tomato plants per acre, more than five times the number usually put in an equal soil area. Too,

obviously, there's no weeding, no cultivating. But, as in conventional farming, plants must be protected from fungi and insects. This means pesticidal chemicals must be applied at regular intervals. (Besides tomatoes, Robbins has experimentally grown peppers, squash and strawberries.)

Besides Puerto Rico, hydroponic farming has been practiced in Florida and by the U. S. Army in Japan and other Pacific islands. In few of these areas, though, does it harbor the economic hope that it does in Puerto Rico.



TOMATOES in 75 days from this plant held by "hydroponic farmer" Robbins.



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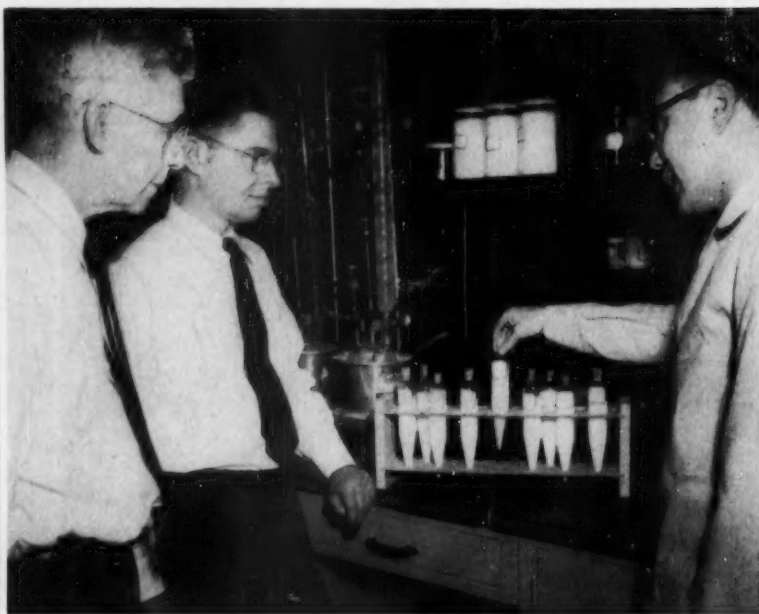
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SPECIALTIES



SHIRT-SLEEVE CONFAB:* Talking it over in National Starch lab in Plainfield.

It's Not All Starch

A singular fact about National Starch Products: a good part of its business is not starch, as the name leads one to think, but nonstarch adhesives.

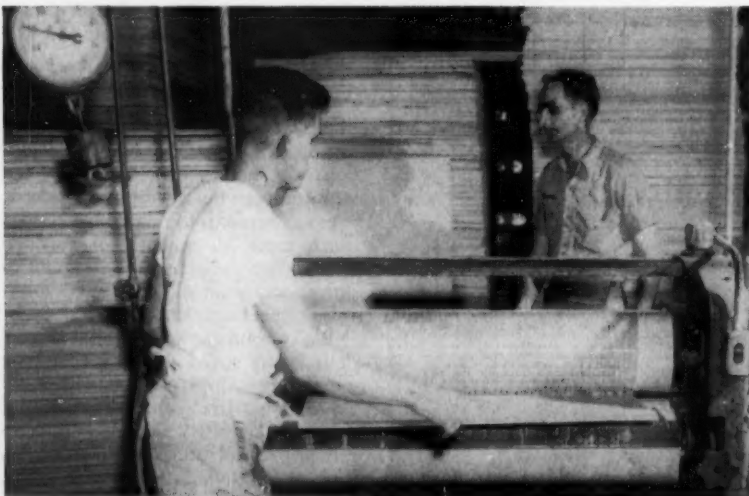
Right now, for instance, it's in the throes of organizing a campaign to get envelope makers to replace the almost universally used coating of dextrin on the front seal (the part

you lick) with a polyvinyl acetate emulsion. Claims for the emulsion: better bonding, no taste, not affected by humidity.

National got started in the vinyl acetate field during World War II. By the time 1946 rolled around, it began buying the monomer and making the polymers and copolymers for its own needs.

In 1952, it launched a \$2-million program to double its capacity in the

* L. to R., Ralph McGaffin, manager of resin development, C. G. Caldwell, director of research, Albert Goldberg, chief of polymerization research.



GLUE SPREADER: For lamination, a uniform coat of polyvinyl resin emulsion.

field and to supply other users as well, marketing the resins in emulsions, lacquers, and hot melts. In the meantime it has increased its volume even more with the result that it is now rated among the first six producers of PVA.

Today the company has plants at Plainfield, N.J., Indianapolis, Chicago, and San Francisco as well as subsidiaries in Canada and England and an affiliate in the Netherlands.

Two Halves: National Starch's business is about equally divided between adhesives and starches. Most of the adhesives are based on starch products or polyvinyls; a smaller line includes nitrocellulose lacquers, rosin adhesives, flexible glues, gum arabic glues, and special casein and rubber-based glues. Principal adhesives operations are at the Plainfield plant (*see cut*).

These products go mostly into paper converting and packaging,* but other markets include wood assembly and bookbinding. Payoff on copolymers began in 1947 with the introduction of Wood-Lok for furniture manufacture. A new product, Wood-Lok 3026, National says, will withstand repeated exposures to freeze-thaw cycles.

National is not large in starch products, selling only around 5% of the total. But it's admitted to be one of the major factors in starch specialties.

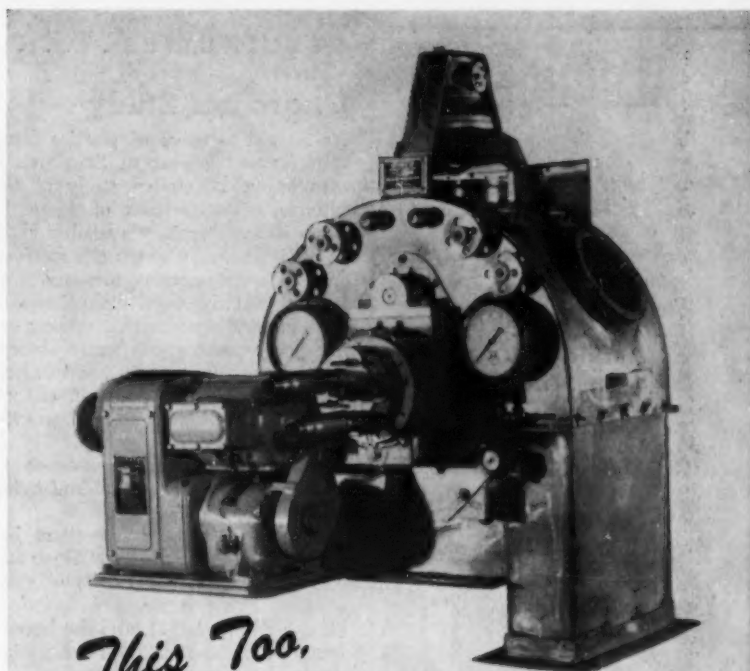
Its three major outlets for starches: food, textile, and paper industries.

Recent Products: Some recent products include Instant Jel, a specialized swelling starch replacing corn starch in puddings, thus making cold-milk types possible; Bio-Sorb, a starch inhibited to withstand sterilization, which National says has replaced talc as dusting agent for surgeons' gloves; Cato Starch, a headbox additive, which gives a stronger bond to cellulose fibers because it is cationic-cellulose and most starch derivatives are anionic.

National Starch hasn't always been National Starch. Until 1939 it was National Adhesives Corp. But that year it purchased Piel Bros. Starch Co. in Indianapolis. Since then, National Adhesives has been a division.

While some may wonder whether National Starch is wise in straddling two different fields, the company would seem to have nothing to worry about if its future pace matches its past. Comparison of net sales: \$4.5 million in 1939, \$25 million in 1952, \$28.8 million last year.

* A clue to how specialized bonding can be: a package of cigarettes requires eight different adhesives, each applied by high-speed automatic machines.



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SPECIALTIES

Character Study

As an aid to users of plastics films, the National Bureau of Standards is completing a detailed study of the physical characteristics of some 13 types of commercially available films.

On 168 samples of plastics received from 27 manufacturers, measurements have been finished on nine phases of testing: tensile properties, folding endurance, tear strength, water absorption, water-vapor permeability, low-temperature impact strength, change in linear dimensions with time, specific gravity, flammability.

Burst strength, and resistance to accelerated weathering are still being evaluated.

The bureau's testing program has been carried out by Murray Slone and Frank Reinhart. The results of their work will be reported in *Modern Plastics* (June, 1954), and the bureau suggests consulting that magazine rather than the NBS.

VPI Hits Home

Sportsmen and home craftsmen are hearing about VPI now. With a just-begun promotional campaign in sports magazines and radio shows, Berlin & Jones Co. Inc. (New York) is introducing its DryVapor Packvelopes for storing tools and guns.

VPI (vapor phase inhibitor) is nothing new to industrial packagers. The Shell-developed system of protection for ferro and ferro-alloy metals has been around since the war's end. It embodies dicyclohexylammonium nitrite (supplied by Monsanto) in a paste that allows slow, even vaporization of the nitrite. Typical applications call for about 1 gm. of inhibitor per square foot of heavy kraft paper, although a 2-gm. "loading" is required for military items.

Despite its industrial success, few noncommercial users have ever had an opportunity to try VPI. Henry Hemmen, Jr., young president of century-old B&J, spotted the possibilities around the home for rustproofing wrappers, and began offering envelope assortments. A kit contains various sizes of envelopes for tools, gauges, guns, and parts, sells for \$2. A special Gunboot is also priced at \$2.

DryVapor Packvelopes are already common in industry. Specially shaped for specific packing jobs, the envelopes provide the manufacturer of steel items with a double-duty unit—it's a protective container before the article is sold, and the buyer can keep it for storing and protecting his purchase.

For Metallized Plastic: Adhesive Products Corp. (New York) now makes a new transparent adhesive for adhering metallized plastic. Called Metagrip, it is said to be usable on metallized acetate, butyrate or polystyrene, does not cause metallic finish to peel or run.

Doubling Output: Bigelow Fiber Glass Products Division, Bigelow-Sanford Carpet Co., Inc., has just installed equipment to double its current output of Glass Mat. It now offers the product up to 84 in. in width. Previously the mat was not made that wide.

Simplifier: The Shoe Products Division of Dewey and Almy Chemical Co. now offers a plastic wetting with a built-in primer coat to simplify the handling of shoes through production. The maker says the development eliminates the need for manufacturers to buy and apply a separate primer coat to insure good adhesion.

Deodorant: Bristol-Myers has brought out a new spray deodorant called Mum Mist. It contains hexachlorophene.

For Children: American Cyanamid Co.'s Fine Chemical Division has developed a combination of Aureomycin, chlortetracycline and triple sulfonamides for treating diarrhea in infants.

Aluminum Solder: A new-type solder, tradenamed AluTin 51, is being made by Eutectic Welding Alloys Corp. (Flushing, N.Y.) for use on wrought and cast aluminum alloys. A liquid flux, it is said to be unlike conventional rosin and liquid fluxes, to have good wetting properties.

Proportioner: Doggett-Pfeil Co. (Springfield, N.J.) has brought out a device designed to automatically proportion water-soluble or concentrated liquid plant foods. It's called Hydromix, and is made of a noncorrosive plastic. Price: \$4.95.

Nylon Delustrant: A new type of delustrant for nylon tricot fabric has been developed by Vikon Chemical Co. (Cambridge, Mass.) It's a cationic resin dispersion, which can be exhausted in a dye beck or padded.

Four in One: Armour Labs, division of Armour and Co., is selling a new formulation of sedative drugs called Nidar. It's a combination of four barbiturates.

Treating Plant: Perma-Wood, Inc. (Cincinnati) is building a plant to treat lumber, structural timbers and posts with pentachlorophenol.

Summer Lotion: Eli Lilly and Co. makes a new lotion for palliative relief of such summer annoyances as sunburn, insect bites, and ivy poisoning. Dubbed Lotion Surfadil, it's a combination of an antihistamine, Histadyl, and an anesthetic, Surfacaine.

Latex Binder: Rubba Inc. (New York) makes a new low-priced binder for jute, sisal and other fibres. Rubba Latex Binder is said to be flexible, quick-drying, self-curing.

Pair: Dodge & Olcott (New York) currently offers two new products. Doldourin N.P. #1, when used in solutions for bright nickel plating, reduces the buffing of nickel prior to chromium plating. Compounds 40-R-4768 & 4943 are employed as masking agents for the pesticide, 95% malathion.

Name Change: American Molding Powder and Chemical Corp. (Brooklyn, N.Y.) has assigned the new tradename, Confetti, to its large-size tinsel flake molding powders. They were formerly sold under the name Stardust.

Rust Inhibitor: The Glidden Co. now markets a new rust-inhibiting paint formula named Nev-A-Rust, said to give protection to any metal surface subjected to oxidation or corrosion. The firm says that it will dry in 6-8 hours and may be recoated in 24. Application is by brush or spraying. The product is a combination of alkyl resins, rust-inhibitive pigments and linseed oil. Featured: it gives a high-gloss finish.

New Plywood: Walton Plywood Co. (Everett, Wash.) says its beveled siding—EverSide—is the newest entry in the field of plywood products. It is beveled at the mill. A phenolic resin-fiber overlay on one face is permanently fused to the panel in a hot press.

Bulletins: Recently made available are these:

- Monsanto's Organic Chemical Div.—a 12-page technical bulletin on Santicizer 141, an alkylaryl phosphate plasticizer for polyvinyl chloride.

- Buffalo Electro-Chemical Co., Inc.—a new bulletin on bleaching nylon type 670 with peracetic acid.

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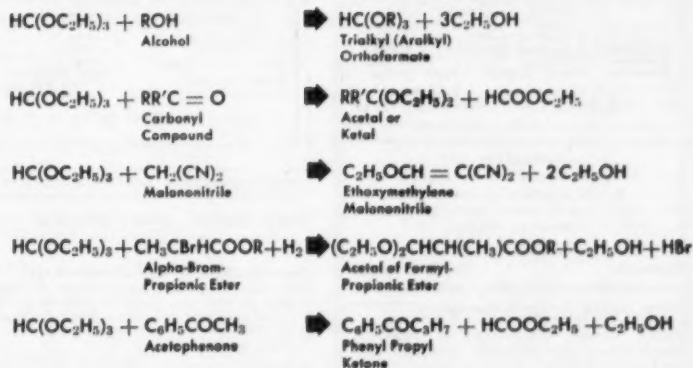
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CHEMICAL WEEK

330 W. 42nd St., N.Y. 36, N.Y.

SPECIALTIES

Glue and Caulk: A combination glue, stop-leak, and caulking compound is now being sold by Thoresen's (New York) under the name Bondpruf. Price: 2-oz. tube, \$1.

Add Six: Krylon, Inc. (Philadelphia) has added six new colors, machine gray, light gray, chrome yellow, regal blue, hunter green, and cherry red, to its line of acrylic sprays. Krylon also has a new fixative for art work.

Aerosols in Montreal: John Struthers & Co., Ltd. has just opened an aerosol loading plant in Montreal. A sub-

sidary of Sherwin-Williams Paint Co. of Canada Ltd., the firm is already packaging insecticides, deodorants, mothproofers.

Nutrition Adder: Abbott Laboratories has developed a nutritional supplement, Maxilets, for treatment of vitamin-mineral deficiencies. It contains 10 vitamins, 9 minerals.

Vitamin Victory: Michigan Governor G. Mennen Williams recently vetoed a bill that would have prohibited the so-called superf fortification of milk with vitamins and minerals. In re-



Two-Way Degummer

JUST HITTING the market is a carburetor cleaning solvent called Carb-Aid. Made by Zecol Inc. (Milwaukee), it can be used in either of two ways.

Where gumming is not serious, a can of Carb-Aid is simply added to 10 or more gallons of gas in the gas tank. But if the gumming is severe, the company recommends the carburetor be cleaned by forced flow feeding—using equal parts of Carb-Aid and gasoline. This mixture is introduced into the carburetor through a kit (*see cut*).

The new product is Zecol's twenty-third in the automotive wax, cleaning and fuel additive field. Incidentally, for the past four years the company head has been Mrs. Leo Sauerborn (*above*) who

took over when her husband, the founder of the firm, died. Besides being president, she is also head of the company's Lubaid Co. division, which is marketing the new item.

One sales appeal of Carb-Aid is that service stations can clean carburetors without dismantling the carburetor or taking it off the engine. The procedure is said to consume only about 15 minutes.

Zecol estimates that most cars need a carburetor cleaning at least twice a year. It adds that if station operators do only one job a day, they can increase their yearly profits by some \$600 or more. Both the product and kits are being distributed through automotive jobbers.

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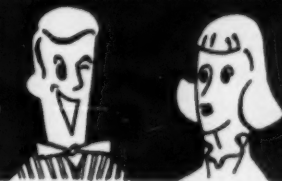
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SPECIALTIES

jecting the measure, he said that Michigan now has "a soundly conceived plan for regulating the sale of fortified milk," and that the state "should conduct no experiments in dairy law that would have the effect of depriving the consumer of a desired product."

Propellent Expansion: General Chemical Div., Allied Chemical & Dye Corp., is expanding its Baton Rouge works to double the output of Genetron propellents. Completion of the project is expected early this summer.

"Bottomless" Garbage Can: Bardmatic Corp. (Muskegon, Mich.) has introduced a "bottomless" garbage disposal unit. A cone-shaped steel can, it's 23 in. high and 24 in. in diameter at its base. When a catalytic starter is emptied into the can, the system proceeds to "liquefy" the garbage, which then seeps into the ground. Retail price: \$29.95.

Liquid Seed Disinfectants: Du Pont has brought out two new liquid seed disinfectant formulations for use on small grains. Both are based on a combination of phenyl mercury acetate and ethyl mercury acetate. Liquid 364 is a concentrate, which is diluted with water for use in slurry treaters; Liquid 244 is for use undiluted in ready-mix (fully automatic) treaters.

Plastic to Metal: O'Sullivan Rubber Corp. (Winchester, Va.) has developed a process of bonding vinyl plastic to metal sheeting—steel, aluminum, magnesium or copper. The resulting material—Syllyvne-Clad Metal Laminate—can be postformed into the finished product. The coating on the laminate is resistant to abrasion and corrosion.

Oil-Resistant Vinyl: Monsanto Chemical Co.'s plastic division now markets an oil-resistant formulation of Ultron vinyl film called Ultron R 117. It is sold for industrial shrouds and protective covers for equipment.

Water-Soluble Rodenticide: Motomco Inc. (New York) has just introduced a new water-soluble anticoagulant rodenticide formulated in a sugar base for use as a liquid bait. Called Pivalyn, it is the sodium salt of 2-pivalyl-1,3-indandione. According to the maker, the large amount of water required by rodents plus the faster absorption of the soluble form of the chemical assure effectiveness at a low concentration—one part in 20,000.

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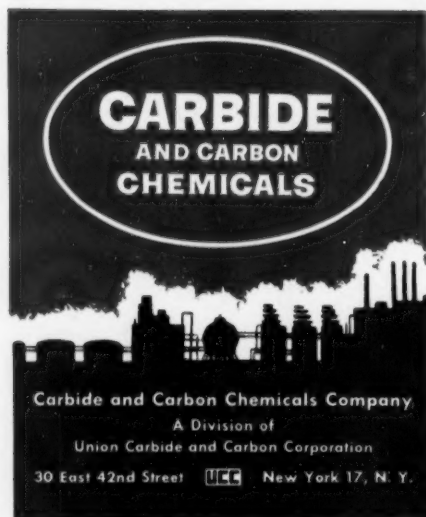


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Butyl CELLOSOLVE	Ethylene Glycol Monobutyl Ether
Methyl CARBITOL	Diethylene Glycol Monomethyl Ether
Butyl CARBITOL	Diethylene Glycol Monobutyl Ether
2-Ethylbutyl CELLOSOLVE	Ethylene Glycol 2-Ethylbutyl Ether
n-Hexyl CELLOSOLVE	Ethylene Glycol n-Hexyl Ether
n-Hexyl CARBITOL	Diethylene Glycol n-Hexyl Ether
Phenyl CELLOSOLVE	Ethylene Glycol Monophenyl Ether
Phenyl CARBITOL	Diethylene Glycol Monophenyl Ether



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